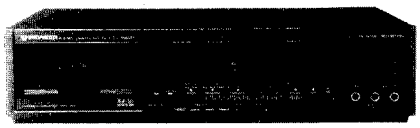
PIONEER®

D39

Service Manual

REPAIR & ADJUSTMENTS



ORDER NO.
ARP-835-0

STEREO CASSETTE TAPE DECK

CT-S88R
CT-S88R(BK)

- Model CT-S88R [BK] is a black version of the CT-S88R.
- Model CT-S88R [BK]/D/G (U.S. Military model) has wooden side panels and the remote control IN/OUT terminals.
- Models CT-S88R [BK] (black) and CT-S88R (silver) come in versions distinguished as follows:

Type	Applicable model		Power requirement	Destination
	CT-S88R [BK]	CT-S88R		
KU	○	–	AC120V only	U.S.A.
KC	○	–	AC120V only	Canada
HEM	○	○	AC220V (240V)*	European continent
HB	○	–	AC240V (220V)*	United Kingdom
D	○	–	AC120V/220V/240V (switchable)	General market
D/G	○	–	AC120V/220V/240V (switchable)	U.S. Military

* Change the primary wiring of the power transformer.

- This service manual is applicable to the KU, KC, HEM, HB, D and D/G types.
- As to the KC, HEM, HB, D and D/G types, please refer to pages 57 – 61.
- As to the circuit descriptions, please refer to the CT-S88R service manual (ARP-836).
- Ce manual d'instruction se refère au mode de réglage en français.
- Este manual de servicio trata del método ajuste escrito en español.

PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
PIONEER ELECTRONICS [USA] INC. P.O. Box 1760, Long Beach, California 90801 U.S.A.
TEL: [800] 421-1404, [800] 237-0424
PIONEER ELECTRONIC [EUROPE] N.V. Keetberglaan 1, 2740 Beveren, Belgium TEL: 03/775·28·08
PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia
TEL: [03] 580-9911

YH ©MAY 1985 Printed in Japan

CONTENTS

1. SPECIFICATIONS 3
2. FRONT PANEL FACILITIES 4
3. DISASSEMBLY 6
4. PARTS LOCATION 12
5. EXPLODED VIEW AND PARTS LIST 14
6. ELECTRICAL PARTS LIST 20
7. SCHEMATIC DIAGRAM 25
8. P.C. BOARDS CONNECTION DIAGRAM 34
9. ADJUSTMENTS 35
   RÉGLAGE 42
   AJUSTE 49
10. PACKING 56
11. SUPPLEMENT FOR KC, HEM, HB, D AND D/G TYPES 57

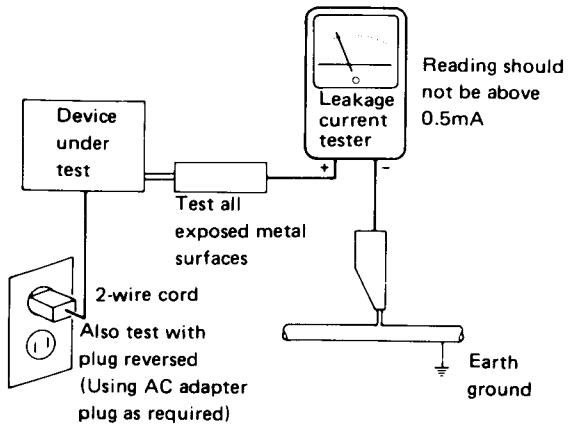
SAFETY INFORMATION

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5mA.


Reading should not be above 0.5mA
Leakage current tester
Device under test
Test all exposed metal surfaces
2-wire cord
Also test with plug reversed (Using AC adapter plug as required)
Earth ground

AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.

The use of a substitute replacement component which dose not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

1. SPECIFICATIONS

System ..... 4 track, 2-channel stereo
Heads ....."Hard Permalloy" recording/playback head x 1
"Ferrite" erasing head x 1
Motor .....DC servo motor x 1
DC reel motor x 1
DC assist motor x 1
Wow and Flutter .....No more than 0.055% (WRMS)
No more than ± 0.16% (DIN)
Fast winding Time ..... Approximately 100 seconds (C-60 tape)
Frequency Response
−20 dB recording:
Normal tape .....35 to 16,000 Hz ±3 dB
Chrome tape .....35 to 16,000 Hz ±3 dB
Metal tape .....35 to 17,000 Hz ±3 dB
0 dB recording:
Chrome tape ..... 30 to 10,000 Hz
Metal tape .....30 to 15,000 Hz
Signal-to-Noise Ratio
Dolby NR OFF ..... More than 57 dB
dbx ON ..... 92 dB
Noise Reduction Effect
Dolby NR B type ON ..... More than 10 dB (at 5 kHz)
Dolby NR C type ON ..... More than 19 dB (at 5 kHz)
Dynamic range (dbx ON) ..... 110 dB
Harmonic Distortion .....No more than 0.7% (0 dB)
Input (Sensitivity)
LINE (INPUT) .....54 mV (Input impedance 96 kΩ)
MIC .....0.25 mV (Source impedance 600 Ω)
Output (Reference level)
LINE (OUTPUT) .....316 mV (Output impedance 5.2 kΩ)
Headphone ..... 0.25 mW (Load impedance 8 Ω)

Subfunctions

- Recording/playback auto-reverse (Quick reverse)
- Random programmed playback
- Skip search/music search
- Noise reduction systems (dbx, Dolby NR B/C types)
- Auto tape selector
- Timer stand-by function
- Headphone jack
- Automatic rec mute function
- Large fluorescent tube
- 4 digit digital tape counter
- Multifunction switches (operation/music selection switch)
- System remote control available (Only D/G model)

Miscellaneous

Power Requirements
KU, KC models ..... AC 120 V, 60 Hz
HEM model ..... AC 220 V, 50/60 Hz
HB, HP models ..... AC 240 V, 50/60 Hz
D, D/G models ..... AC 120 V/220 V/240 V, 50/60 Hz (switchable)
Power Consumption
KU, KC models ..... 34 W
HEM, HB, HP models ..... 40 W
D, D/G models ..... 28 W
Dimensions (Except for D/G model)
.....420 (W) x 101 (H) x 318 (D) mm
16-9/16 (W) x 4 (H) x 12-8/16 (D) in
(D/G model) .....458 (W) x 102 (H) x 318 (D) mm
18-1/16 (W) x 4 (H) x 12-8/16 (D) in
Weight [(without package) except for D/G model]
..... 5.6 kg (12 lb 6 oz)
[(without package) D/G model] ..... 6.4 kg (14 lb 2 oz)

Accessories

Operating instructions 1
Connection cord with pin plugs 2
Control cord (Only D/G model) 1

NOTE:
Specifications and design subject to possible modifications without notice due to improvements.

INFORMATION TO USER [FOR U.S.A. MODEL]

This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation.

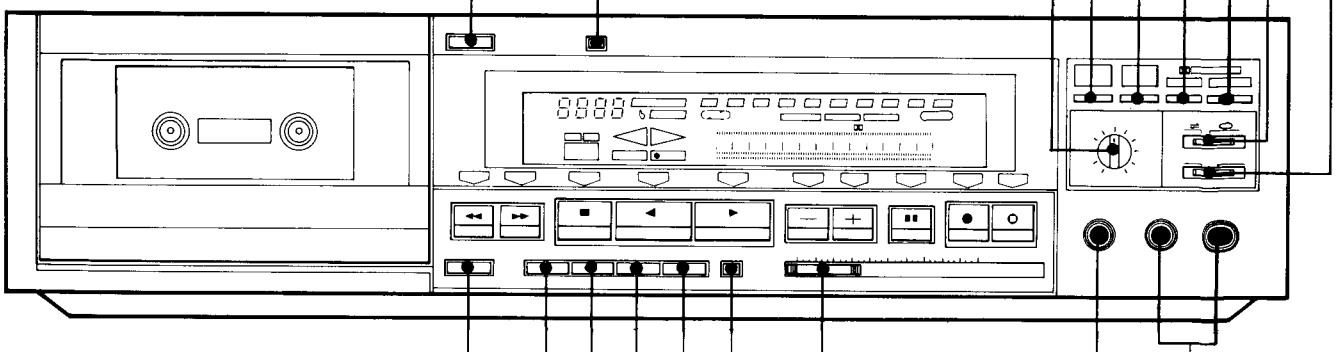
If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- reorient the receiving antenna
- relocate this component with respect to the receiver
- move this component away from the receiver
- plug this component into a different outlet so that component and receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful:
"How to Identify and Resolve Radio-TV Interference Problems".
This booklet is available from the US Government Printing Office, Washington, D.C., 20402, Stock No. 004-000-00345-4.

The above instructions apply only to units which will be operated in the United States.

2. FRONT PANEL FACILITIES



TIMER switch

Used only when performing unattended recording or wake-up playback. Normally, leave in the OFF position.

COUNTER RESET button

REVERSE MODE switch

EJECT button

If the power is disconnected while a tape is running, the eject function will not operate. In such a case, turn on the power once again, and then press the EJECT button.

Noise reduction switches

REC BALANCE control

MIC jacks

PHONES jack

POWER switch

REC LEVEL control

PROGRAM/CLEAR switch

- Press to set unit to the random programmed playback mode.
- If a mistake is made during programming, press this switch to clear programmed selections and bigin again.

SKIP switch

Program RESET switch

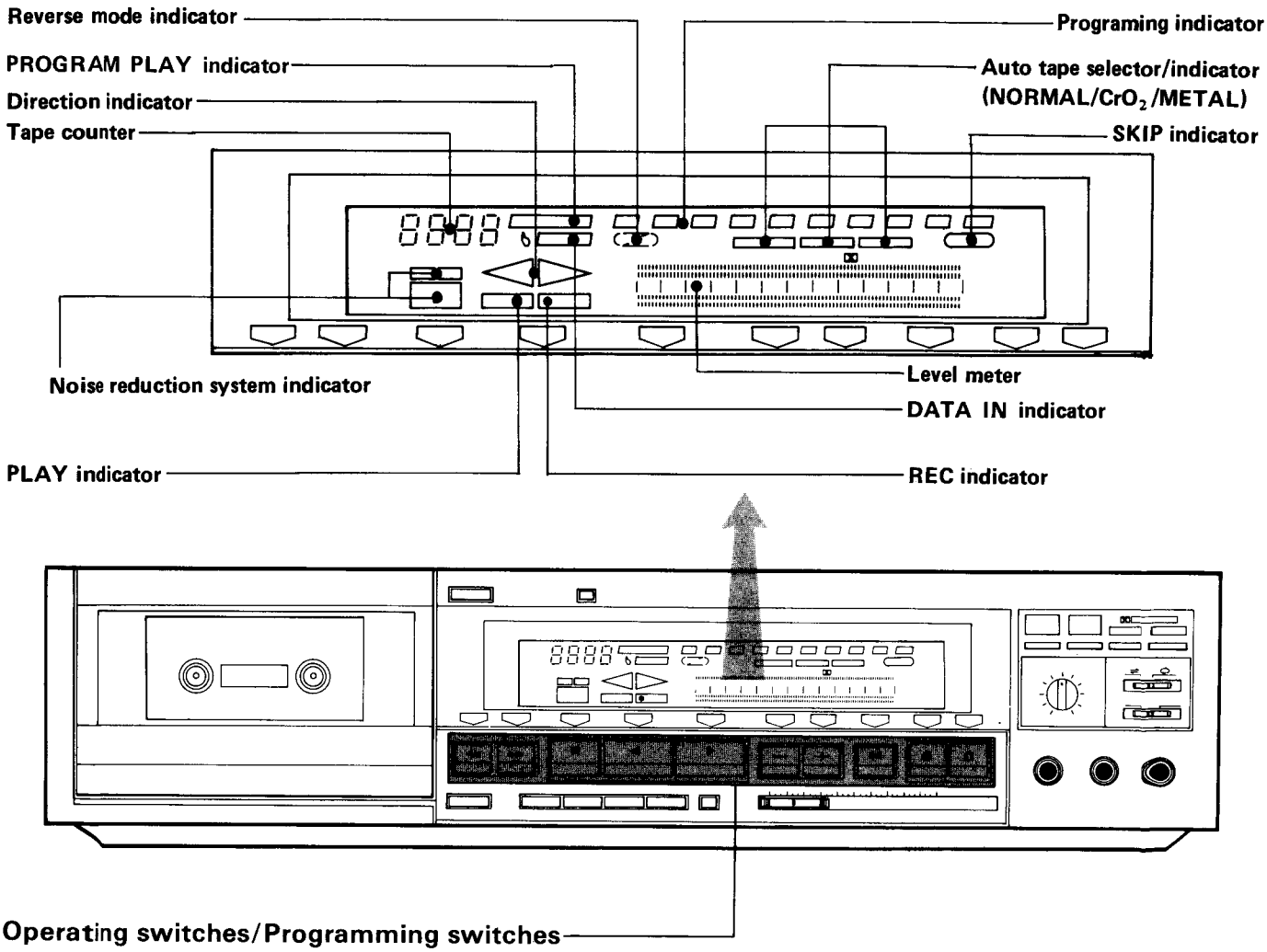
Press to reset programmed playback.

Tape SIDE B selector switch

Press when performing random programmed playback of selections on the tape's side B.

Programmed play START switch

Press to start programmed playback.



Operating switches/Programming switches

These switches are used for operating deck, and also for programming selections for random programmed playback.

[When used as operating switches]

◀◀ : Rewind switch
▶▶ : Fast forward switch
■ : STOP switch
◀ : REVERSE switch. Press to play back the reverse side of the tape (the side opposite from the side visible in the holder).
▶ : FORWARD switch. Press to play back the forward side of the cassette tape (the side visible in the holder).
− + : Press when performing skip search and music search.
▮▮ : PAUSE switch. Press to temporarily stop the tape travel. To restart the tape travel, press once again. The pause function does not operate when the deck is in the fast forward or rewind modes.
● : REC switch. The deck cannot be placed in the recording mode if a cassette with broken erasure prevention tabs is loaded, or if no tape cassette is loaded.
O : REC MUTE switch. Press during recording to eliminate unwanted portions, or to create a non-recorded interval between tracks.

[When used as programming switches]

Used during random programmed play operation.

- Noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
- "Dolby" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

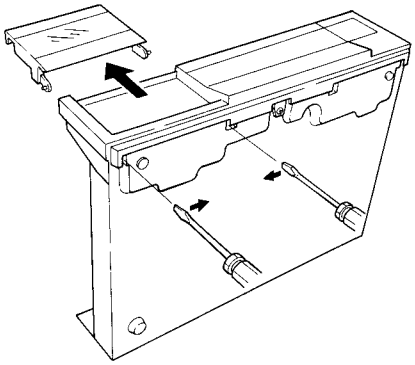
- dbx is a trademark of DBX incorporated.

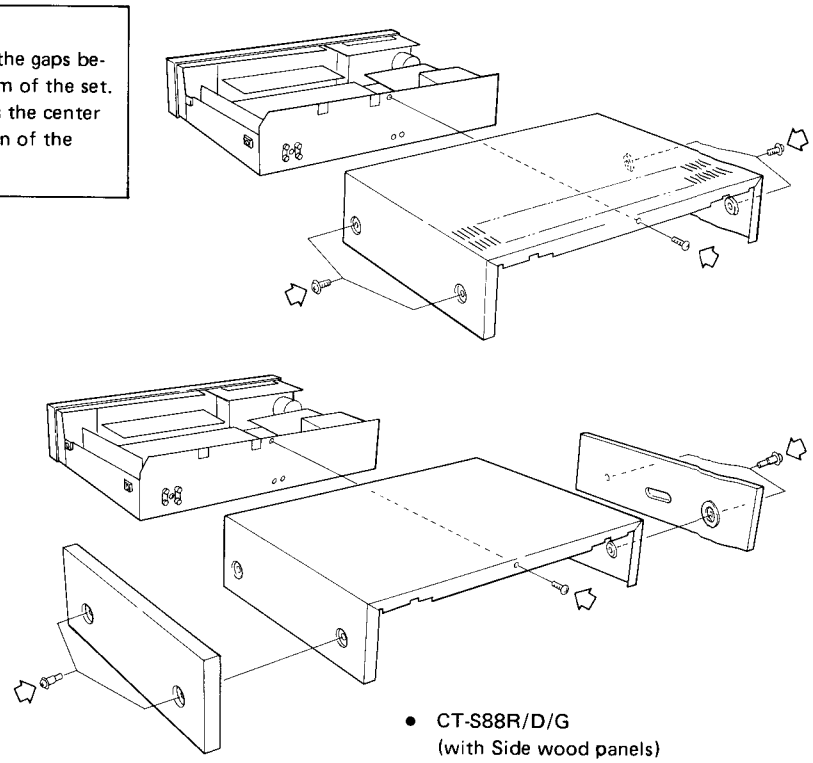
3. DISASSEMBLY

Disassembly of The Tape Transport Unit

1. Remove The Bonnet Case
   Undo the screws in the left and right hand sides of the bonnet case (two screws per side) and the screw in the top center of the rear panel. The side wood panels in CT-S88R/D/G are disassembled and reassembled together with the bonnet.

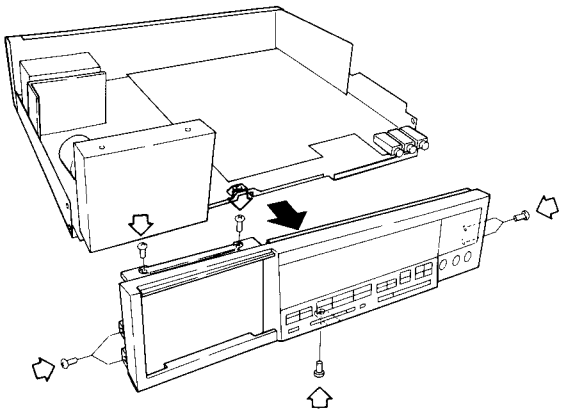
2. Remove The Door
   Stand the set upright and insert screwdrivers into the gaps between the front panel and the chassis in the bottom of the set. By bending the hinge sections of the door towards the center of door, the door can be pulled out in the direction of the arrows.



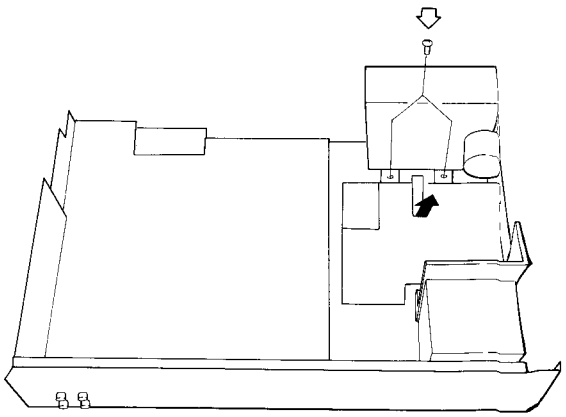


- CT-S88R/D/G
  (with Side wood panels)

3. Remove The Front Panel
   Undo the setscrews in the top of the tape transport unit and the setscrews in the left and right hand sides (two screws each side) and then pull the front panel out forwards.



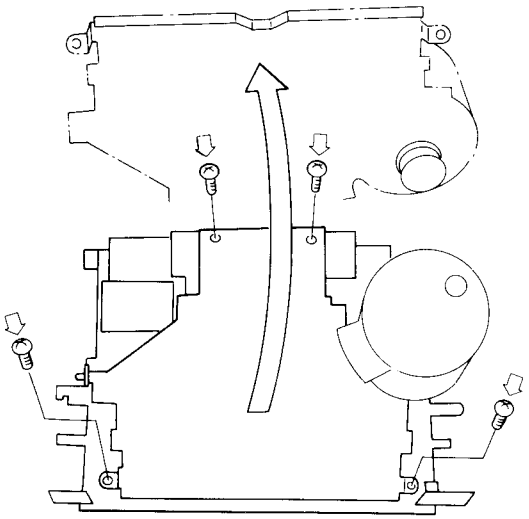
4. Remove The Tape Transport Unit
   Undo the two setscrews securing tape transport unit and then remove unit by swivelling the unit base back and up.



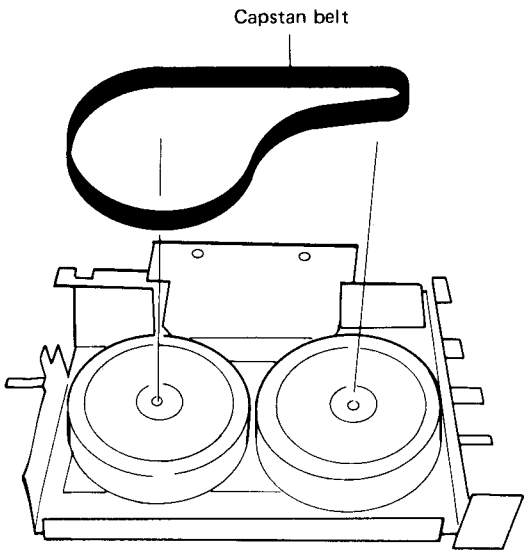
Belt Replacement

1. Remove The Tape Transport Unit from The Chassis (See page 6.)

2. Remove The Motor Bracket
   Undo screws in all four coners to remove the motor bracket from the chassis.



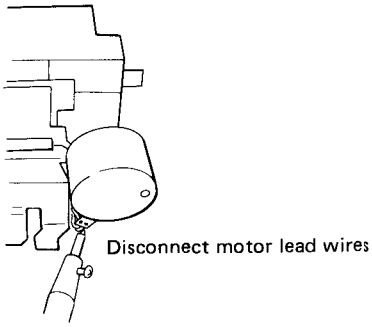
3. Replace The Belt, and Reassemble in The Reverse Order



Capstan Motor Replacement

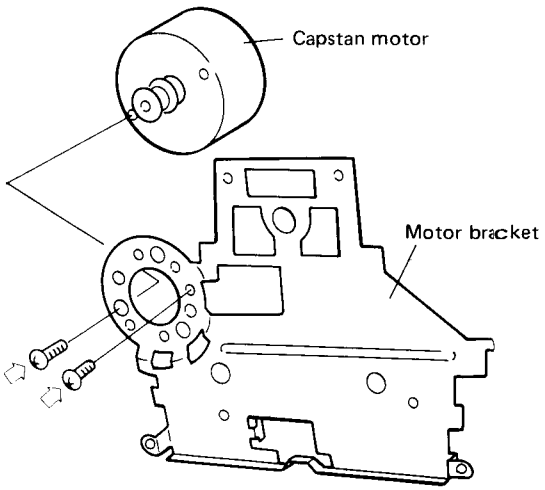
1. Remove The Tape Transport Unit from The Chassis (See page 6.)

2. Disconnect The Motor Lead Wires from The motor



3. Remove The Motor Bracket
   (See step 2 in previous procedure.)

4. Remove Bracket from The Motor, and Replace The Motor



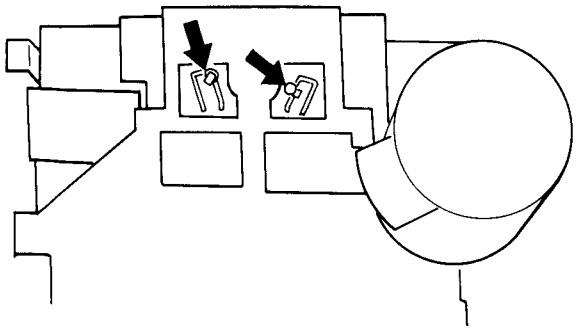
5. Reassemble in The Reverse Order
   (Making sure that the motor is mounted in the correct direction.)

6. Adjust Tape Speed

Reel Motor Replacement

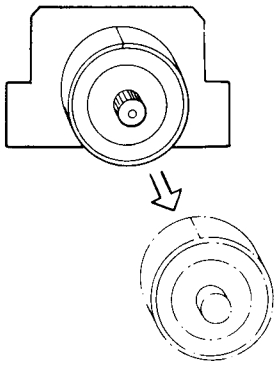
1. Remove The Tape Transport Unit from The Chassis (See page 6.)
2. Remove The Motor Bracket (See page 7.)
3. Disconnect The Jumper Leads from The Reel Motor Terminals (Using a soldering iron.)

Remove the terminal connection leads

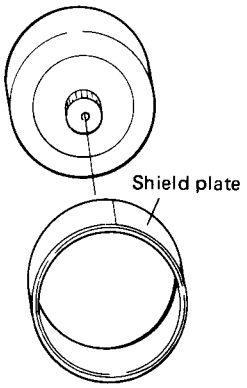


4. Remove The Reel Motor from The Circuit Board, And Also Remove The Shield Plate.

Remove reel motor from circuit board



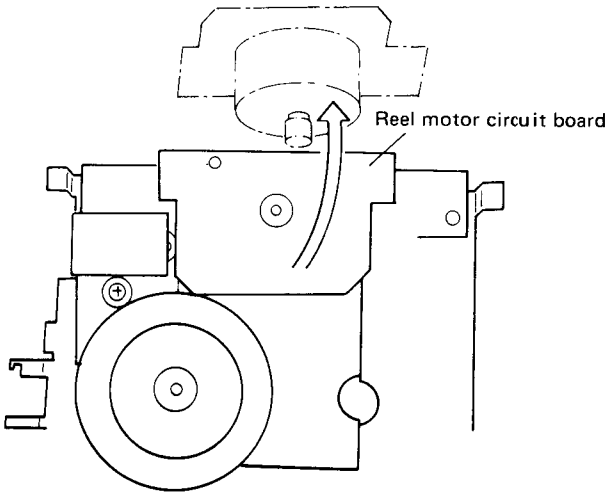
Remove shield plate



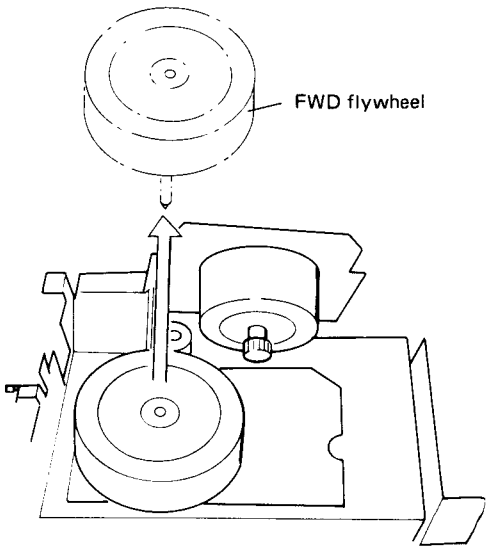
5. Fit The Shield Plate onto A New Motor And Fix into Position with Bond.
6. Secure by Wrapping Mylar Tape Around The Outside.
7. Reassemble in The Reverse Order. (Reversing the operations in Step 3 thru 1)

Assist Motor Replacement

1. Remove The Tape Transport Unit from The Chassis (See page 6.)
2. Remove The Motor Bracket (See page 7.)
3. Remove The Reel Motor (Together with Its Circuit Board) from The Chassis.

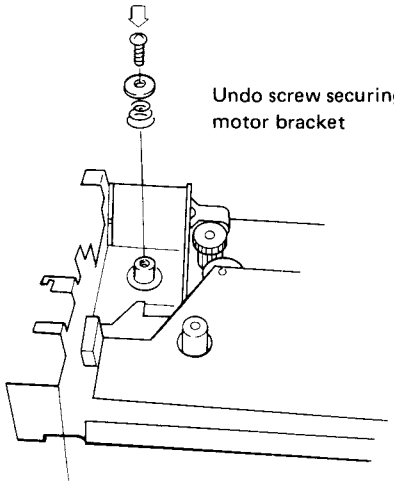


4. Remove The FWD Flywheel

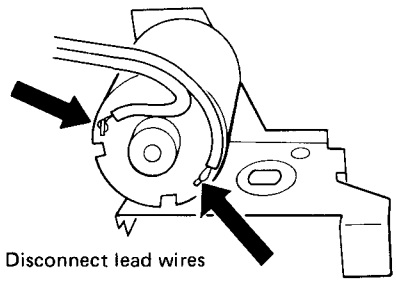


Continued on the next page.

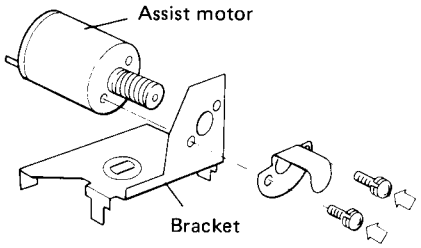
5. Remove The Assist Motor (Togehter with Corresponding Bracket) from The Chassis.



6. Disconnect The Lead Wires from The Terminals with A Soldering Iron.



7. Remove The Assist Motor from The Bracket



8. Remove The Shield Plate from The Old Motor And Wind And Secure It onto A New Motor.

9. Mount The New Motor into The Bracket.

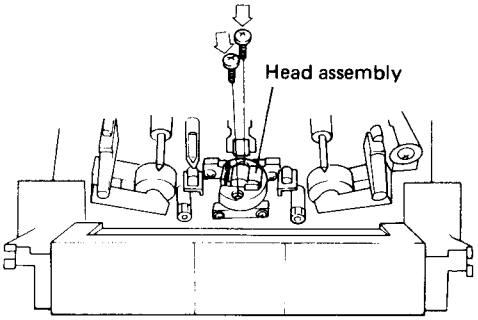
10. Apply Grease to The Worm Gear And to The End of Motor Axle.

11. Reassemble in The Reverse Order (Reversing The Operations in Steps 6 thru 1).

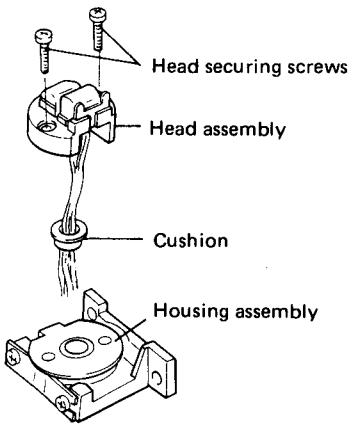
Head Replacement

1. Remove The Tape Transport Unit from The Chassis (See page 6.)

2. Undo The Screws Securing The Head, And Remove The Head Assembly.



3. Remove The Cushion from The Lead Wires, And Then Pass Lead Wires from A New Head Through The Cushion (Making Sure That The Leads Are Passed in The Right Direction)



4. Reassemble in The Reverse Order.

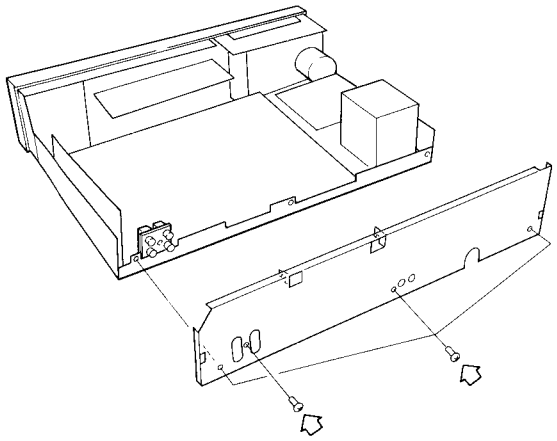
5. Proceed with Tape Transport And Electrical Adjustments.

Note: After completing the head replacement procedure, always ensure that the securing screws are sealed.

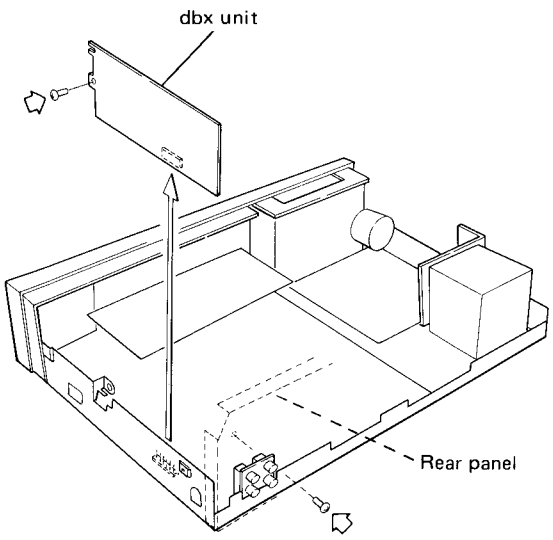
Main Unit Removal

1. Remove The Bonnet (See page 6.)

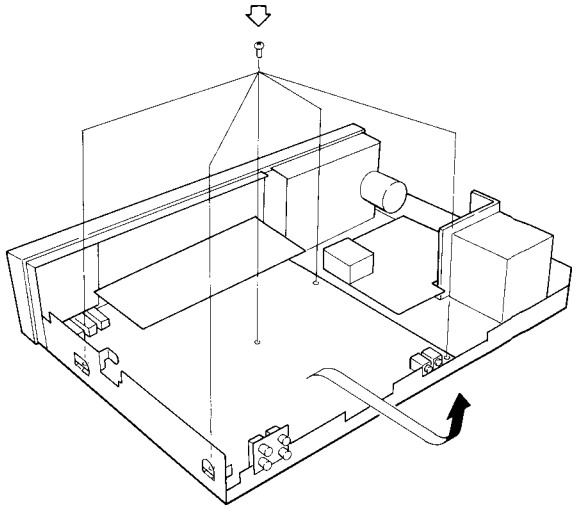
2. Remove The Rear Panel
   Undo the three setscrews in the rear panel and a setscrew securing the 4-pin jack. Then release the rear panel hooks by lifting up.



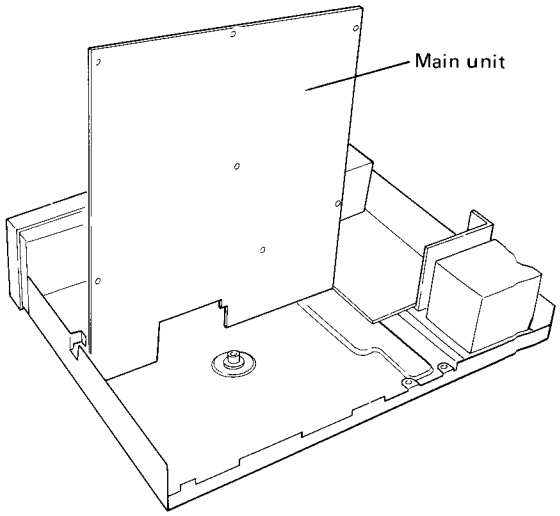
3. Remove The dbx Unit
   Undo the one setscrew to remove the dbx unit.
   (Undo the one setscrew in the rear panel if the rear panel has been not removed.)



4. Remove The Main Unit
   Undo five screws securing the Main unit, and then lift the rear side of the Main unit and pull out backwards.

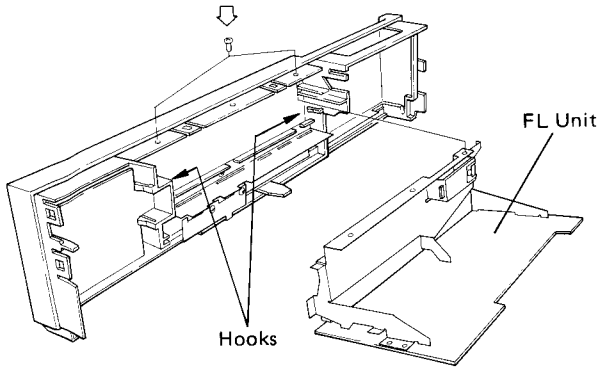


5. Stand The Main Unit
   Cut out wires ties properly and raise up the Main unit.



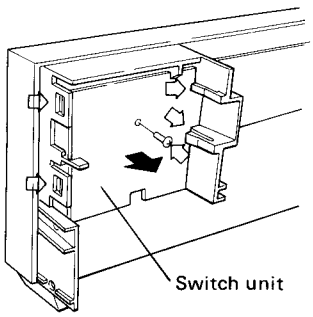
FL Unit Removal

1. Remoe The Bonnet (See page 6.)
2. Remove The Door (See page 6.)
3. Remove The Front Panel (See page 6.)
4. Remove The FL Unit
   Undo two setscrews at the top and then disengage the two hooks projecting from the inside of the front panel.



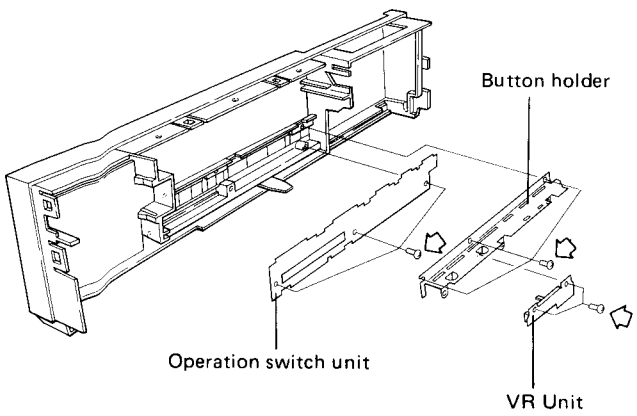
Switch Unit Removal

1. Remove The Bonnet (See page 6.)
2. Remove The Door (See page 6.)
3. Remove The Front Panel (See page 6.)
4. Remove The Switch Unit
   Undo the one screw securing the switch unit, and then disengaging the two hook catches and the two inserting sections, pull the unit out toward the rear.



VR Unit and Operation Switch Unit Removal

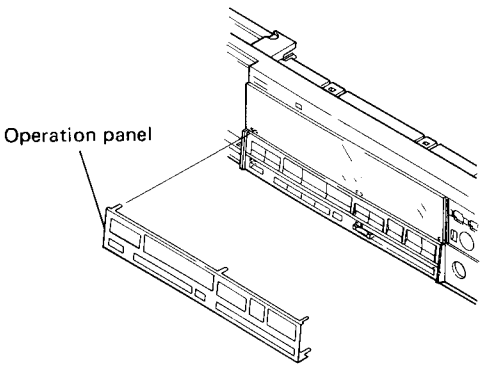
1. Remove The Bonnet (See page 6.)
2. Remove The Door (See page 6.)
3. Remove The Front Panel (See page 6.)
4. Remove The VR Unit
   Undo the two screws securing the VR unit.
5. Remove The Operation Switch Unit
   Undo the three setscrews, and then remove the unit from the button holder by swivelling towards the rear.
   (● Undo the three screws securing the button holder.)



Operation Panel Removal

1. Remove The Bonnet (See page 6.)
2. Remove The door (See page 6.)
3. Remove The Front Panel (See page 6.)
4. Remove The Operation Panel
   Straighten the operation panel holding bends from the rear of the front panel, and remove the operation panel (struck by the dual-sided adhesive tape).

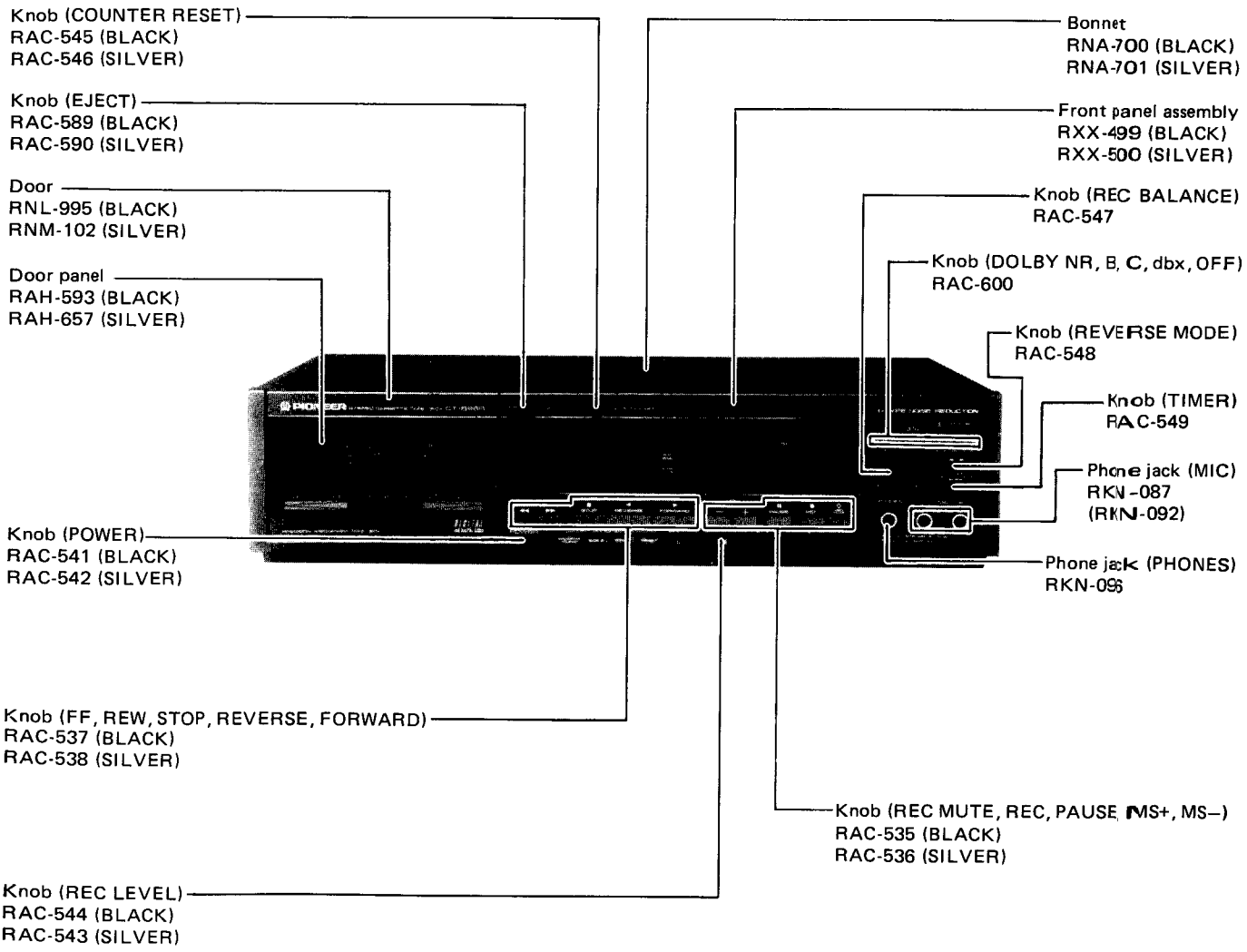
Note: If the operation panel is removed, it is not used again.



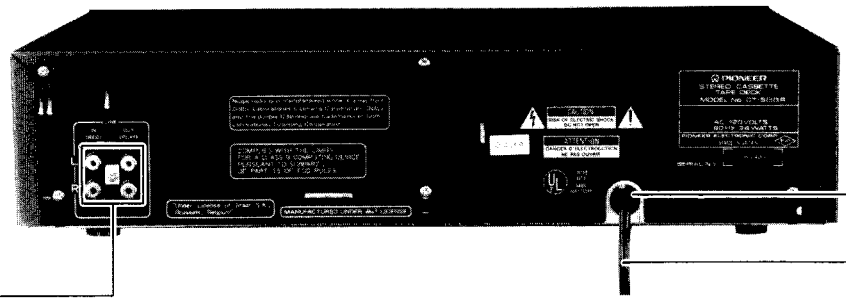
4. PARTS LOCATION

- *Parts without part number cannot be supplied.*
- *The ⚠ make found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *For your Parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.*
  ★★ GENERALLY MOVES FASTER THAN ★.
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.

Front Panel View



Rear Panel View (KU type)

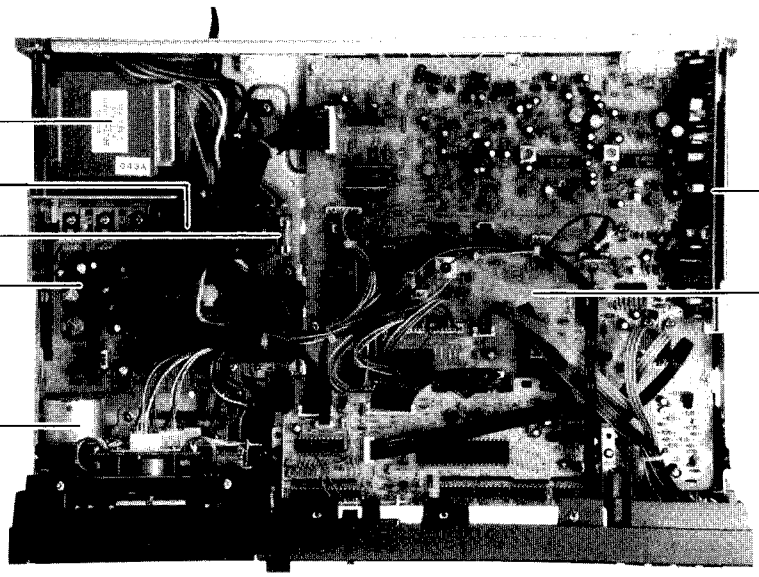


Terminal (LINE)
RKB-023

⚠ Strain relief
REC-395

⚠ AC power cord
RDG-048

Top View (KU type)



⚠ ★ Power transformer (120V)
RTT-416

⚠ ★★ Fuse (FU1, 500mA)
REK-077

⚠ ★★ Fuse (FU2, 1.25A)
REK-073

Power supply unit

★★ Capstan motor
RXM-125

dbx. unit

Main unit

5. EXPLODED VIEW AND PARTS LIST

NOTES:

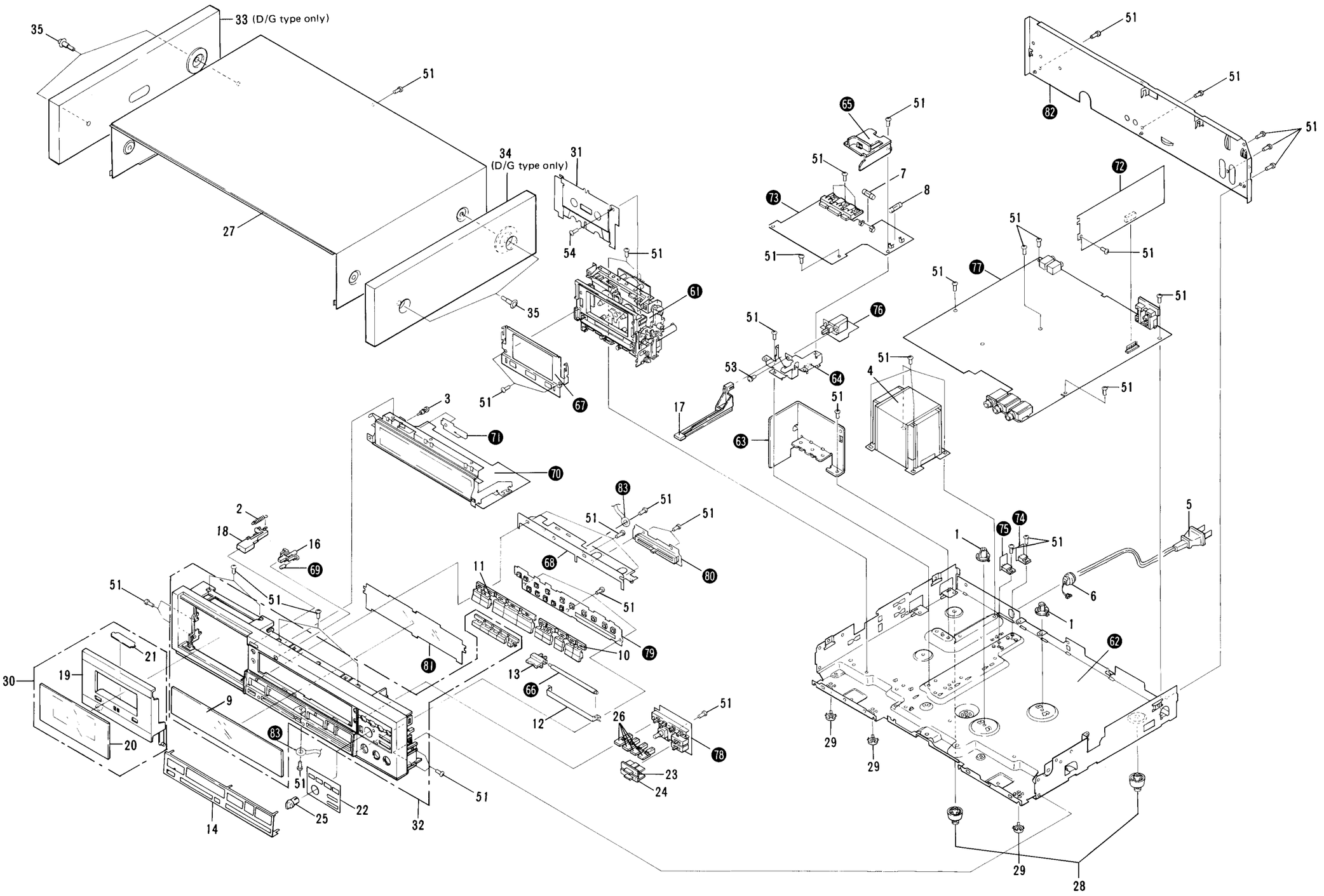
- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *For your Parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.*
  ★★ GENERALLY MOVES FASTER THAN ★.
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.

Parts List of Exploded View

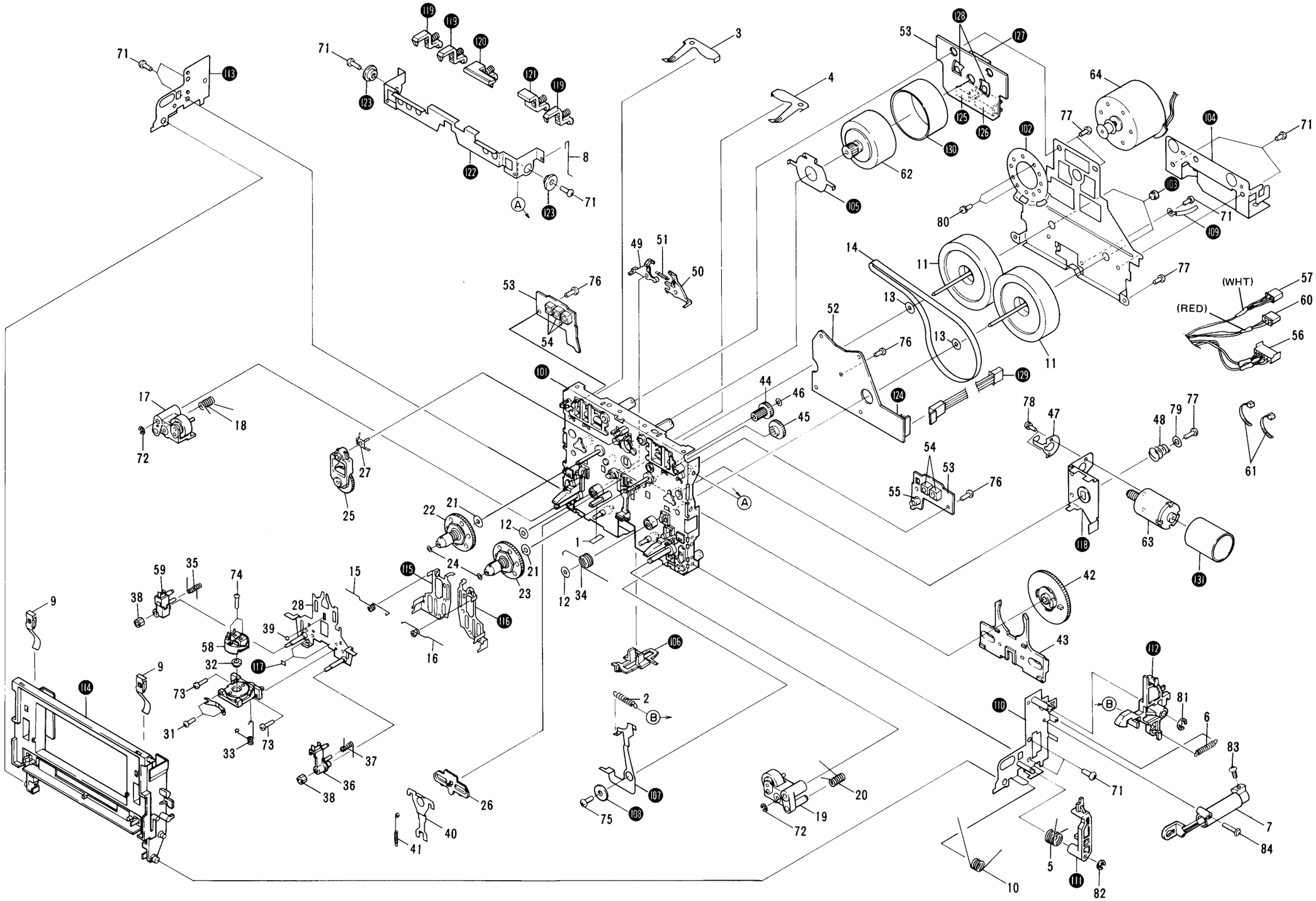
- (BK) : CT-S88R [BK] (Black)
- (SL) : CT-S88R (Silver)

Mark	No.	Part No.	Description
	1	RNL-792	Stud
	2	RBL-137	Eject spring
	3	RBM-014	Nylon rivet
⚠ ★	4	RTT-416	Power transformer (120V)
⚠	5	RDG-048	AC Power cord
⚠	6	REC-395	Strain relief
⚠ ★★	7	REK-077	Fuse (FU1, 500mA)
⚠ ★★	8	REK-073	Fuse (FU2, 1.25A)
	9	RAH-591	Meter panel
	10	RAC-535 (BK) RAC-536 (SL)	Knob (MS+, MS–, PAUSE, REC, REC MUTE)
	11	RAC-537 (BK) RAC-538 (SL)	Knob (FF, REW, STOP, REVERSE, FORWARD)
	12	RNH-419	VR Plate
	13	RAC-544 (BK) RAC-543 (SL)	Knob (REC LEVEL)
	14	RAH-753 (BK) RAH-595 (SL)	Operation panel
	15	.....	.....
	16	RAC-545 (BK) RAC-546 (SL)	Knob (COUNTER RESET)
	17	RAC-541 (BK) RAC-542 (SL)	Knob (POWER)
	18	RAC-589 (BK) RAC-590 (SL)	Knob (EJECT)
	19	RNL-995 (BK) RNM-102 (SL)	Door
	20	RAH-593 (BK) RAH-657 (SL)	Door panel
	21	RAH-603 (BK) RAH-752 (SL)	Door plate
	22	RAH-592	NR Plate
	23	RAC-548	Knob (REVERSE MODE)
	24	RAC-549	Knob (TIMER)
	25	RAC-547	Knob (REC BALANCE)
	26	RAC-600	Knob (DOLBY NR, B, C, dbx, OFF)
	27	RNA-700 (BK) RNA-701 (SL)	Bonnet
	28	REC-369	Leg assembly
	29	RNM-046	Leg
	30	RXX-496 (BK) RXX-507 (SL)	Door assembly
	31	RXX-486	Cassette plate assembly
	32	RXX-499 (BK) RXX-500 (SL)	Front panel assembly
	33	RXX-491	Side wood panel (L) (D/G type only)
	34	RXX-492	Side wood panel (R) (D/G type only)
	35	FBT40P080FZK RBA-093	Screw 4 x 8 (without D/G type) Screw (for D/G type)
	51	BBZ30P080FMC	
	52	.....	
	53	PMA30P060FMC	
	54	BCT26P100FZK	
	61		Tape transport unit
	62		Chassis
	63		Heat sink
	64		Switch holder
	65		Cover
	66		VR Shaft
	67		Pocket holder
	68		Knob plate
	69		Cushion (A)
	70		FL Unit
	71		Reset switch unit
	72		dbx unit
	73		Power supply unit
	74		Transistor unit A
	75		Transistor unit B
	76		Power switch unit
	77		Main unit
	78		Switch unit
	79		Operation switch unit
	80		VR Unit
	81		Meter screen
	82		Rear panel
	83		Grounding lead wire

Exterior Components



Tape Transport Unit



NOTES:

- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *For your Parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.*
  ★★ *GENERALLY MOVES FASTER THAN* ★.
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.

Parts List of Tape Transport Unit

Mark	No.	Part No.	Description
	1	REF-025	Reflection plate
	2	RBL-091	Eject prevention spring
	3	RBK-188	Hold spring (L)
	4	RBK-189	Hold spring (R)
	5	RBL-076	Stopper spring (R)
	6	RBL-077	Eject arm spring
	7	RXC-036	Damper assembly
	8	RBL-078	Rod (R)
	9	RNH-349	Hold spring
	10	RBL-079	Door spring (R)
	11	RXC-037	Flywheel assembly
	12	RBF-030	Oil stopper washer
	13	WA26D045D025	Washer
★★	14	REB-522	Capstan belt
	15	RBL-080	SB spring (L)
	16	RBL-081	SB spring (R)
★★	17	RXC-038	Pinch roller assembly (L)
	18	RBL-082	Pinch roller spring (L)
★★	19	RXC-039	Pinch roller assembly (R)
	20	RBL-083	Pinch roller spring (R)
	21	WA21D070D013	Washer
	22	RXC-040	Reel base assembly
	23	RXC-075	TU reel base assembly
	24	RBF-057	Washer
★★	25	RXC-076	Idler assembly
	26	RNL-926	C/R slide plate
	27	RBK-191	Damper spring
	28	RXC-042	Head base plate
	29	RXC-043	Head housing
	30	RBK-184	Azimuth spring
	31	RBA-092	Azimuth screw
	32	REB-521	Cushion
	33	RBL-085	Rotator spring
	34	RBL-086	HB spring
	35	RBL-087	Spring (L)
	36	RNL-929	Tape guide
	37	RBL-088	Spring (R)
	38	RNL-930	Nut
	39	REF-024	Steel ball
	40	RBK-185	Hold spring
	41	RBL-089	CR slide spring
	42	RXC-044	Gear assembly
	43	RNL-932	Switching slide plate
	44	RNM-103	Worm gear
	45	RNL-934	Idler gear
	46	RBF-057	Washer
	47	RBK-187	Thrust spring
	48	RBL-090	BKT spring
	49	RNL-936	Brake lever (L)
	50	RNL-937	Brake lever (R)
	51	RBL-092	Brake spring
	52	RNR-321	Sensor panel
	53	RNR-270	P.C. board
★★	54	RSG-162	Tact switch
★	55	NJL5141E	Photo-interrupter
	56	RKS-029	Connector (6-P)
	57	RKS-030	Connector (3-P)
★★	58	RPB-120	Tape head assembly
★★	59	RXC-049	Sensor assembly
	60	RKS-031	Connector (3-P)
	61	REC-371	Wire tie
★★	62	RXM-122	Reel motor assembly
★★	63	RXM-134	Assist motor assembly
★★	64	RXM-125	Capstan motor assembly
	71	PVZ30P040FMC	Screw 3 x 4
	72	YE20FUC	Washer E-type
	73	PMA20Y050FMC	Screw 2 x 5
	74	PMZ14P050FNi	Screw 1.4 x 5
	75	PVZ30P060FMC	Screw 3 x 6
	76	PRZ20P060FMC	Screw 2 x 6
	77	PRZ26P080FMC	Screw 2.6 x 8
	78	PMA20P030FZB	Screw 2 x 3
	79	WB30FMC	Washer
	80	PMA26P040FMC	Screw 2.6 x 4
	81	YE30FUC	Washer E-type
	82	YE25FUC	Washer E-type
	83	PMZ26P040FMC	Screw 2.6 x 4
	84	iCZ20P120FMC	Screw 2 x 12
	101		Chassis
	102		Motor bracket
	103		Thrust screw
	104		Hold plate
	105		Grounding plate
	106		Wire holder
	107		Eject prevention arm (R)
	108		Spacer
	109		Cord fixer
	110		Bracket assembly

• **Continued on the next page bellow.**

6. ELECTRICAL PARTS LIST

NOTES:

- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*
  Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω	*56 x 10¹*	*561*	*RD¼PS 5 6 1 J*
47kΩ	*47 x 10³*	*473*	*RD¼PS 4 7 3 J*
0.5Ω	*0R5*		*RN2H 0 R 5 K*
1Ω	*010*		*RS1P 0 1 0 K*

  Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ	*562 x 10¹*	*5621*	*RN¼SR 5 6 2 1 F*

- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *For your Parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.*
  ★★ GENERALLY MOVES FASTER THAN ★.
  This classification shall be adjusted by each distributor because it depends on model number , temperature, humidity, etc.

Miscellaneous Parts

P.C. BOARD ASSEMBLIES

Mark	Symbol & Description	Part No.
	Main unit	Non supply
	Switch unit	
	Operation switch unit	
	VR Unit	
	Power supply unit	
	Transistor A unit	
	Transistor B unit	
	Power switch unit	
	FL Unit	
	Reset switch unit	
	dbx unit	

FUSES

Mark	Symbol & Description	Part No.
⚠ ★★	FU1 Fuse (500mA)	REK-077
⚠ ★★	FU2 Fuse (1.25A)	REK-073

TAPE TRANSPORT UNIT

Mark	Symbol & Description	Part No.
★★	S1501 Tact switch (AR-REV)	RSG-162
★★	S1502 Tact switch (DOOR)	RSG-162
★★	S1503 Tact switch (AR-FWD)	RSG-162
★★	S1504 Tact switch (METAL DET.)	RSG-162
★★	S1506 Tact switch (CrO_2 DET.)	RSG-162
★★	CM Capstan motor	RXM-125
★★	RM Reel motor	RXM-122
★★	AM Assist motor	RXM-134
★★	Sensor assembly (Leader tape DET.)	RXC-049
★★	Tape head assembly	RPB-120
★★	Photo-interrupter (Tape end DET.)	NJL5141E

OTHERS

Mark	Symbol & Description	Part No.
⚠ ★	T1 Power transformer (120V)	RTT-416
⚠	AC Power cord	RDG-048
⚠	Strain relief	REC-395

Continued from the preceding page

Mark	No.	Part No.	Description
	111		Stopper (R)
	112		Eject arm (R)
	113		Side plate (A)
	114		Door frame
	115		Slide base (L)
	116		Slide base (R)
	117		Spacer
	118		Assist motor bracket (R)
	119		REC detector assembly
	120		Metal detector assembly
	121		Eject detector assembly
	122		Detector arm
	123		Spacer

Mark	No.	Part No.	Description
	124		Connector (6-P)
	125		Connector (3-P)
	126		Connector (6-P)
	127		Connector (7-P)
	128		Jumper wire
	129		Connector (6-P)
	130		Shield plate
	131		Shield plate

Main Unit

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
★★	Q330	PD3031A
★★	Q331	LC7800
★★	Q114, Q214	AN7370K
★★	Q113	M5220L
★★	Q115, Q118, Q119	M5218L
★★	Q332	TC5066BP
★★	Q324, Q325	BA6109
★★	Q327	M5233P
★★	Q326	BA335
★★	Q101 – Q108, Q116, Q201 – Q208, Q216, Q301, Q305, Q309, Q314, Q317, Q320 – Q323	2SC1740S
★★	Q306, Q307, Q315, Q318, Q319	2SA933S
★★	Q302 – Q304	2SC2060
★★	Q117, Q217	2SC2240
★★	Q110, Q111, Q210, Q211	2SK246
★★	Q109, Q112, Q209, Q212	2SJ103
★	D301 – D305, D307 – D319, D324 – D330	1S2473
⚠ ★	D306	1SR35-100A
⚠ ★	D323	RD3.0FB1
★	D320–D322 (D/G type only)	1S2473

COILS

Mark	Symbol & Description		Part No.
	L301	OSC Coil	RTD-038
	L103, L203	Trap coil	RTF-152
	L101, L201	MPX Filter	RTF-138
	L104, L204	Peaking coil (6.8mH)	RTF-126
	L105, L205	Trap coil	RTF-153
	L102, L202	Coil (36mH)	RTF-155

CAPACITORS

Mark	Symbol & Description	Part No.
	C129, C229, C323	CEAR10M50
	C122, C222	CEJAR15M50
	C130, C230, C140, C240	CEJAR33M50
	C123, C223, C176, C276, C316	CEAR47M50
	C138, C238, C174, C274, C311, C325, C335	CEA010M50
	C132, C142, C232, C242, C315	CEA4R7M50
	C107, C113, C120, C124, C125, C133, C135, C136, C141, C148, C150 – C152, C178, C207, C213, C220, C224, C225, C233, C235, C236, C241, C248, C251, C252, C278, C308, C317	CEA100M16
	C104, C106, C137, C204, C206, C304, C313, C320, C334, C342	CEA330M16
	C175, C309, C310, C314, C344	CEA470M16
	C177, C277, C275	CEA101M16
	C114, C214	CEA471M16
	C111, C112, C211, C212, C172, C272	CEANL010M50
	C102, C202	CEANL100M16
	C109, C209, C145, C245	CQMA222J50
	C322, C331	CQMA682K50
	C126, C139, C226, C239	CQMA182J50
	C110, C210, C306, C307	CQMA332J50
	C118, C218	CQMA472J50
	C116, C147, C216, C247	CQMA822J50
	C105, C127, C144, C146, C205, C227, C244, C246	CQMA103J50
	C108, C208	CQMA153J50
	C305	CQMA223J50
	C115, C119, C215, C219	CQMA273J50
	C117, C128, C217, C228, C324	CQMA333J50
	C321	CQMA104K50
	C303	CQPA183J100
	C101, C201	CQSA821J50
	C318, C319	CCDCH300J50
	C301, C302	CCDSL101K500
	C103, C131, C134, C173, C203, C231, C234, C273, C333, C336	CCDSL101J50
	C143, C243	CCDSL221J50
	C121, C171, C221, C271	CKDYB471K50
	C312, C326, C327, C329, C337 – C341, C343, C345	CKDYF103Z50
	C170, C270	CKDYF473Z50
	C328, C330	CKDYX104M25

RESISTORS

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

Mark	Symbol & Description	Part No.
★	V101, V201, V303 Semi-fixed (10k-B)	VRTB6VS103
★	V102, V103, V202, V203 Semi-fixed (22k-B)	VRTB6VS223
★	V301, V302 Semi-fixed (150k-B)	VRTB6VS154
	R339 Resistor array (10k x 6, 22k x 2)	RCX-029
	R346 Resistor array (22k x 4, 22k x 4)	RCX-028
	R338 Resistor array (22k x 7)	RM7-223J
⚠	R108, R276, R308	RD1/2PMF □□□J
	R102 – R105, R108, R109, R133, R134, R141, R146, R147, R150, R170, R171, R173–R176, R178 – R181, R203 – R205, R209, R212, R213, R233, R234, R241, R263, R266, R270, R271, R273 – R280, R285, R301, R302, R308, R309, R313, R317, R323, R333, R337, R344, R345, R349, R353 – R355, R367, R369, R470	RD1/4PM □□□J
	R329, R343 (D/G type only)	RD1/4PM □□□J
	R172, R272	RD1/4PM □□□JNL
	Other resistors	RD1/6PM □□□J

OTHERS

Mark	Symbol & Description		Part No.
★★	RY301	Reed relay	RSR-035
	Terminal (LINE)		RKB-023
	S101, S202	Phone jack (MIC)	RKN-092
	Phone jack (PHONES)		RKN-096
★	X301	Ceramic resonator	RSS-035
	J20	Connector 8P	RKP-590

Switch Unit

SWITCHES

Mark	Symbol & Description	Part No.
★★	S501 – S503 Push switch assembly B (dbx, DOLBY NR B,C)	RSG-171
★★	S504 Slide switch (TIMER)	RSH-064
★★	S505 Slide switch (REVERSE MODE)	RSH-066

RESISTORS

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

Mark	Symbol & Description	Part No.
★	V501 Variable (5k-B) (REC BALANCE)	RCS-030
	R501, R502	RD1/6PM □□□J

Operation Switch Unit

SWITCHES

Mark	Symbol & Description	Part No.
★★	S701 – S715 Tact switch (REW/1, FF/2, STOP/3, REV-PLAY/4, FWD-PLAY/5, MS–/6, MS+/7, PAUSE/8, REC/9, REC MUTE/10, PROGRAM/CLEAR, SIDE B, START, RESET, SKIP)	RSG-155

VR Unit

RESISTOR

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. before.

Mark	Symbol & Description	Part No.
★	V801 Slide variable (5k-A) (REC LEVEL)	RCW-014

Power Supply Unit

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
⚠ ★★	Q401, Q402	2SD1276
⚠ ★★	Q404	2SD1265
★★	Q403, Q407, Q409, Q410, Q411, Q413	2SC1740S
★★	Q405, Q406, Q408, Q412	2SA933S
⚠ ★	D401	S4VB20F
⚠ ★	D418	1B2Z1-LC2
⚠ ★	D419	1B2C1-LC2
⚠ ★	D403 – D406	1SR35-100A
★	D407, D414 – D417, D420, D421	1SS254
⚠ ★	D409	RD15EB3 (MTZ15C)
⚠ ★	D410, D411	RD5.6EB2 (RD5.6EB3) (MTZ5.6B) (MTZ5.6C)
⚠ ★	D412	RD27EB1 (RD27EB2) (MTZ27A) (MTZ27B)
⚠ ★	D413	RD20EB1 (RD20EB2) (MTZ20A) (MTZ20B)

CAPACITORS

Mark	Symbol & Description	Part No.
	C429	CEA2R2M50
	C418	CEA3R3M50
	C427	CEA4R7M50
	C403, C432, C433	CEA100M16
	C412	CEA470M10
	C408, C413, C425, C426	CEA470M25
	C416	CEA470M50
	C414	CEA101M10
	C411	CEA101M16
	C402, C424	CEA101M25
	C420	CEA101M35
	C405, C428	CEA221M16
	C415	CEA221M50
	C410	CEA102M16
	C401, C407	CEA102M35
	C419	CEA472M16
	C404, C409, C417, C430, C431	CKDYF103Z50
	C406	CKDYF473Z50

RESISTORS

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

Mark	Symbol & Description	Part No.
⚠	R406	RS1LF122J
⚠	R401, R403, R407, R408	RD1/2PMF □□□J
	R402, R404, R405, R414, R423	RD1/4PM □□□J
	Other resistors	RD1/6PM □□□J

OTHERS

Mark	Symbo
⚠	Fuse h

Transistor U

SEMICONDUC

Mark	Symbo
⚠ ★★	Q1301

Transistor U

SEMICONDUC

Mark	Symbo
⚠ ★★	Q1201

Power Switc

SWITCH

Mark	Symbo
⚠ ★★	S1401

CAPACITOR

Mark	Symbo
⚠	C1401

FL Unit

SEMICONDUC

Mark	Symbo
★★	Q603
★★	Q604
★★	Q613
★★	Q607
★★	Q611,
★★	Q601,
★★	Q614
★★	Q619
★	D601,
⚠ ★	D607

	Part No.
	2SD1276
	2SD1265
1, Q413	2SC1740S
	2SA933S
	S4VB20F
	1B2Z1-LC2
	1B2C1-LC2
	1SR35-100A
421	1SS254
	RD15EB3
	(MTZ15C)
	RD5.6EB2
	(RD5.6EB3)
	(MTZ5.6B)
	(MTZ5.6C)
	RD27EB1
	(RD27EB2)
	(MTZ27A)
	(MTZ27B)
	RD20EB1
	(RD20EB2)
	(MTZ20A)
	(MTZ20B)

	Part No.
	CEA2R2M50
	CEA3R3M50
	CEA4R7M50
	CEA100M16
	CEA470M10
	CEA470M25
	CEA470M50
	CEA101M10
	CEA101M16
	CEA101M25
	CEA101M35
	CEA221M16
	CEA221M50
	CEA102M16
	CEA102M35
	CEA472M16
1	CKDYF103Z50
	CKDYF473Z50

nvert the resistance value
vrite the part no. as before.

	Part No.
	RS1LF122J
	RD1/2PMF □□□J
23	RD1/4PM □□□J
	RD1/6PM □□□J

OTHERS

Mark	Symbol & Description	Part No.
⚠	Fuse holder	RKR-024

Transistor Unit A

SEMICONDUCTOR

Mark	Symbol & Description	Part No.
⚠★★	Q1301	2SD1265

Transistor Unit B

SEMICONDUCTOR

Mark	Symbol & Description	Part No.
⚠★★	Q1201	2SD1265

Power Switch Unit

SWITCH

Mark	Symbol & Description	Part No.
⚠★★	S1401 Push switch (POWER)	RSA-063

CAPACITOR

Mark	Symbol & Description	Part No.
⚠	C1401 Ceramic (0.01/AC400V)	RCG-006 (RCG-009)

FL Unit

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
★★	Q603	LC7555
★★	Q604	TA7318P
★★	Q613	PDE004
★★	Q607 – Q610	TC5066BP
★★	Q611, Q612	TC5067BP
★★	Q601, Q622, Q623	2SC1740S
★★	Q614 – Q616, Q618, Q624	2SA933S
★★	Q619 – Q621, Q625	DTC143XS
★	D601, D602	1SS254
⚠ ★	D607	MTZ9.1A (MTZ9.1B) (RD9.1EB1) (RD9.1EB2)

CAPACITORS

Mark	Symbol & Description	Part No.
	C605, C606	CEJAR22M50
	C604	CEAR47M50
	C602, C603	CEA010M50
	C607, C608	CEA4R7M50
	C613,	CEA100M16
	C614	CEA100M35
	C611	CEA470M16
	C601, C609	CEA330M16
	C610	CQMA102J50
	C615, C616	CKDYF103Z50
	C612	CQSA221J50

RESISTORS

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

Mark	Symbol & Description	Part No.
★	V601 Semifixed (150k-B)	VRTB6VS154
⚠	R603, R661	RD1/2PMF □□□J
	R638 – R641 Resistor array (10k x 7)	RM7-103J
	R619 Resistor array (47k x 14)	RM14-473J
	R614 – R618 Resistor array (100k x 12)	RCX-030
	Other resistors	RD1/6PM □□□J

OTHERS

Mark	Symbol & Description	Part No.
	FL tube tape	REH-014
	Nylon rivet	RBM-014
★	Fluorescent display tube	FIP13AW24Y

Reset Switch Unit

SWITCH

Mark	Symbol & Description	Part No.
★★	S1101 Push switch (COUNTER RESET)	RSG-155

dbx Unit

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
★★	Q913	AN6291
★★	Q914	M5218L
★★	Q901 – Q912, Q915, Q919	2SC1740SLN
★★	Q916 – Q918	2SA933S
⚠ ★	D903	RD5.6EB1 (RD5.6EB2) (MTZ5.6A) (MTZ5.6B)
★	D901, D902	1S2473

CAPACITORS

Mark	Symbol & Description	Part No.
	C946	CEA101M16
	C947	CEA331M10
	C939, C940, C945	CEA330M16
	C925, C926, C948	CEA470M10
	C929, C930, C936, C943, C944	CEA100M16
	C949	CEA4R7M50
	C935, C937, C938	CEA010M50
	C917, C918 Electrolytic (10/16, NL)	RCH-069 (RCH-070)
	C919, C920 Electrolytic (0.68/50, NL)	RCH-073 (RCH-074)
	C913, C914	CEAR33M50
	C901, C902	CEAR22M50
	C941, C942	CCDSL181J50
	C903 – C906	CQMA104J50
	C915, C916	CQMA333J50
	C923, C924, C933, C934	CQMA223J50
	C927, C928	CQMA472J50
	C907 – C910	CQMA332J50
	C921, C922	CQSA471J50
	C931, C932	CQSA391J50
	C911, C912	CQSA331J50

RESISTORS

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

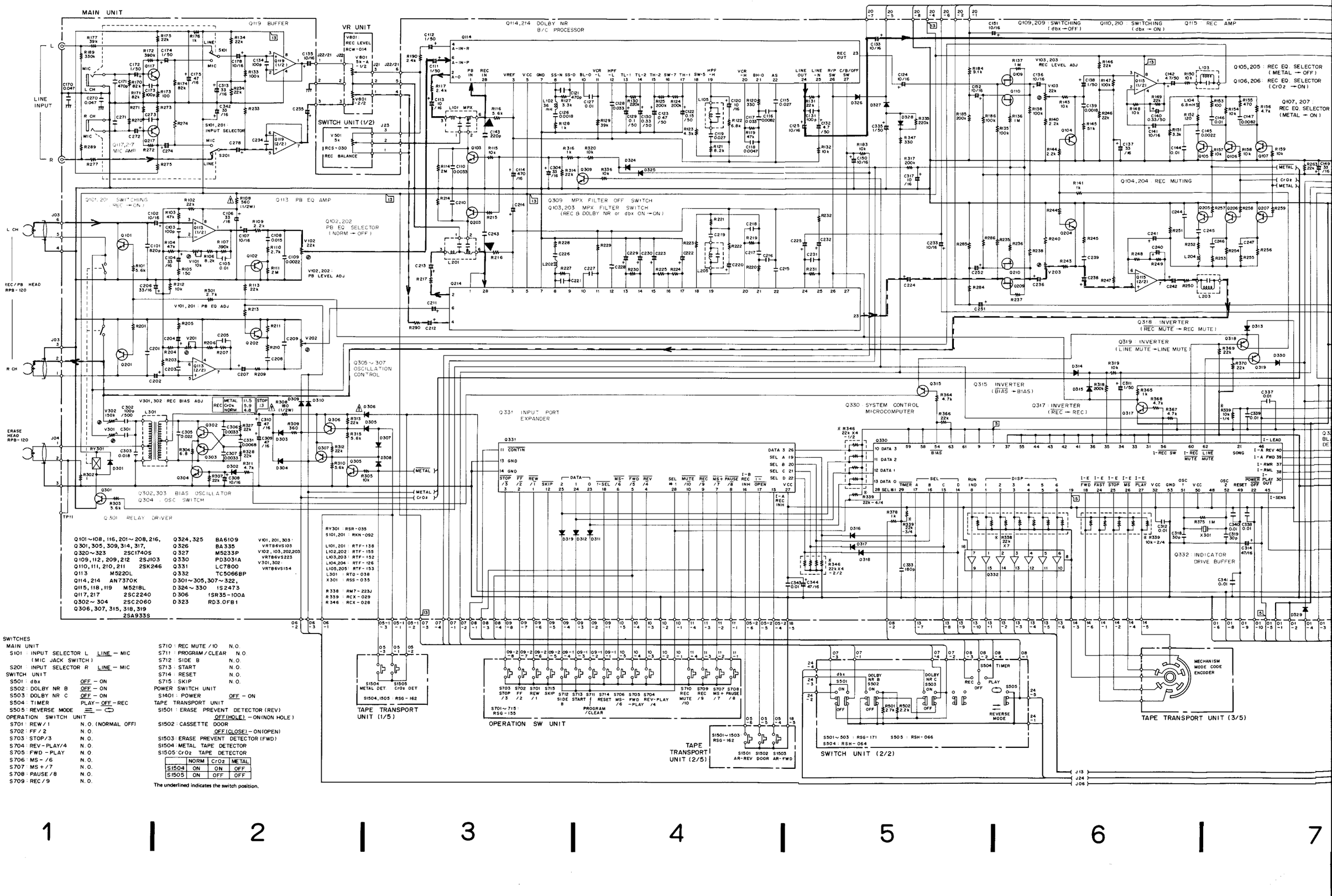
Mark	Symbol & Description	Part No.
★	V901 Semi-fixed (2.2k)	VRTB6VS222
	R912, R914, R942, R916, R958, R959, R957	RD1/4PM □□□J
	Other resistors	RD1/6PM □□□J

OTHERS

Mark	Symbol & Description	Part No.
	Connector socket 8-P	RKP-602

7. SCHEMATIC DIAGRAM

• D320–D322, R329, R343 and REMOTE CONTROL terminals on the Main unit apply to D/G type only.



Q101~108, 116, 201~208, 216, Q301, 305, 309, 314, 317, Q320~323 2SC1740S
Q109, 112, 209, 212 2SJ103
Q110, 111, 210, 211 2SK246
Q113 M5220L
Q114, 214 AN7370K
Q115, 118, 119 M5218L
Q117, 217 2SC2240
Q302~304 2SC2060
Q306, 307, 315, 318, 319 2SA933S
Q324, 325 BA6109
Q326 BA335
Q327 M5233P
Q330 PD3031A
Q331 LC7800
Q332 TC5066BP
D301~305, 307~322, D324~330 IS2473
D306 ISR35-100A
D323 RD3.0FB1

V101, 201, 303 : VRT86VS103
V102, 103, 202, 203 VRT86VS223
V301, 302 : VRT86VS154

RY301 : RSR-035
S101, 201 : RKN-092
L101, 201 : RTF-138
L102, 202 : RTF-155
L103, 203 : RTF-152
L104, 204 : RTF-126
L105, 205 : RTF-153
L301 : RTO-038
X301 : RSS-035
R338 : RM7-223J
R339 : RCX-029
R346 : RCX-028

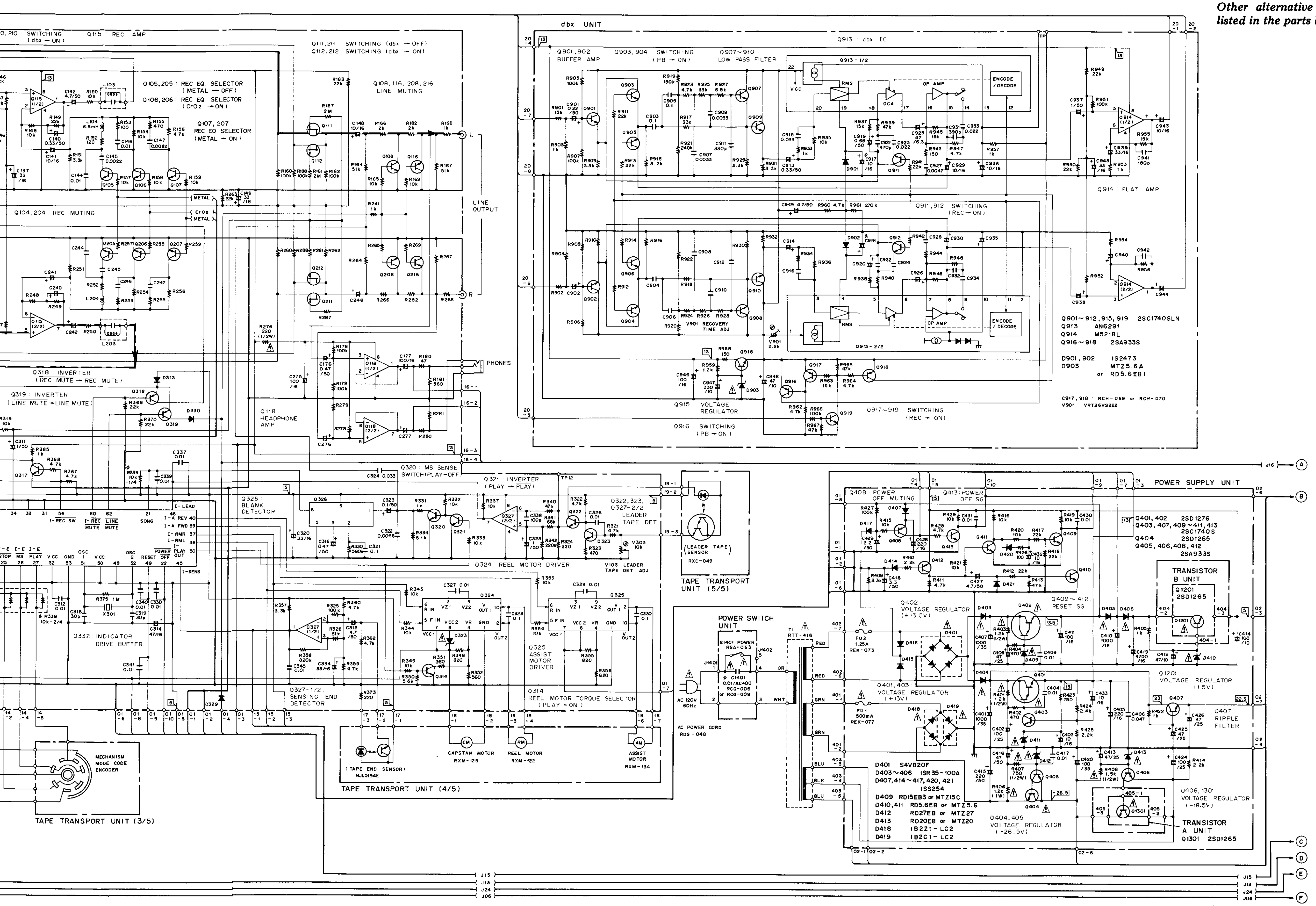
SWITCHES
MAIN UNIT
S101 : INPUT SELECTOR L LINE — MIC (MIC JACK SWITCH)
S201 : INPUT SELECTOR R LINE — MIC
SWITCH UNIT
S501 : dbx OFF — ON
S502 : DOLBY NR B OFF — ON
S503 : DOLBY NR C OFF — ON
S504 : TIMER PLAY — OFF — REC
S505 : REVERSE MODE ⇌ — ⊂⊃
OPERATION SWITCH UNIT
S701 : REW/1 N.O. (NORMAL OFF)
S702 : FF/2 N.O.
S703 : STOP/3 N.O.
S704 : REV-PLAY/4 N.O.
S705 : FWD-PLAY N.O.
S706 : MS-/6 N.O.
S707 : MS+/7 N.O.
S708 : PAUSE/8 N.O.
S709 : REC/9 N.O.
S710 : REC MUTE/10 N.O.
S711 : PROGRAM/CLEAR N.O.
S712 : SIDE B N.O.
S713 : START N.O.
S714 : RESET N.O.
S715 : SKIP N.O.
POWER SWITCH UNIT
S1401 : POWER OFF — ON
TAPE TRANSPORT UNIT
S1501 : ERASE PREVENT DETECTOR (REV) OFF(HOLE) — ON(NON HOLE)
S1502 : CASSETTE DOOR OFF(CLOSE) — ON(OPEN)
S1503 : ERASE PREVENT DETECTOR (FWD)
S1504 : METAL TAPE DETECTOR
S1505 : CrO2 TAPE DETECTOR

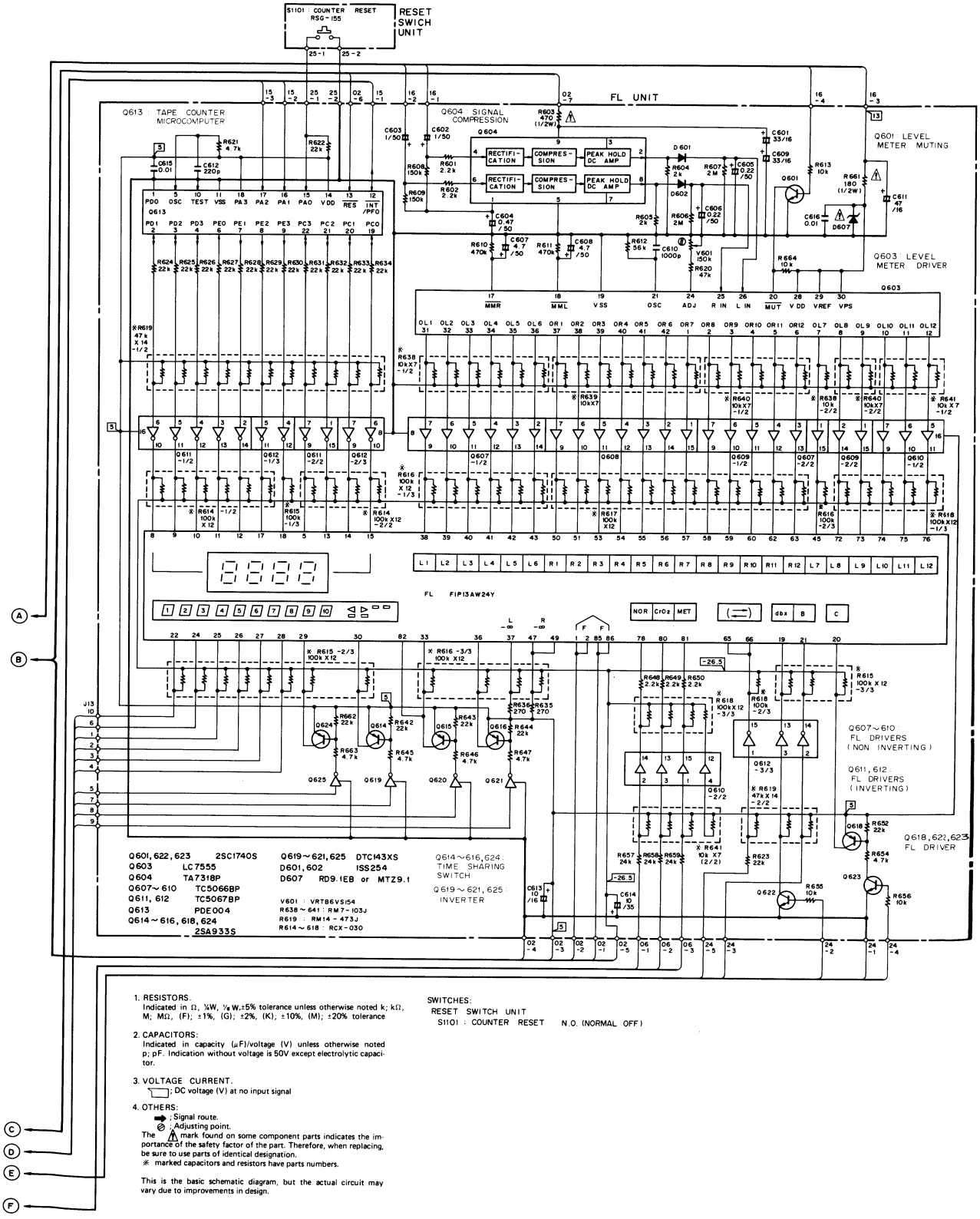
	NORM	CrO2	METAL
S1504	ON	ON	OFF
S1505	ON	OFF	OFF

The underlined indicates the switch position.

S1504, 1505 : RSG-162
S701~715 : RSG-155
S1501~1503 : RSG-162
S501~503 : RSG-171
S504 : RSH-064
S505 : RSH-066

NOTE:
The indicated semiconductors are representative ones only. Other alternative semiconductors may be used and are listed in the parts list.


Q115 REC AMP
Q111,211 SWITCHING (dbx → OFF)
Q112,212 SWITCHING (dbx → ON)
Q105,205 : REC EQ. SELECTOR (METAL → OFF)
Q106,206 : REC EQ. SELECTOR (CrO2 → ON)
Q107,207 : REC EQ. SELECTOR (METAL → ON)
Q108,116,208,216 LINE MUTING
Q104,204 REC MUTING
LINE OUTPUT
PHONES
Q118 HEADPHONE AMP
Q318 : INVERTER (REC MUTE → REC MUTE)
Q319 : INVERTER (LINE MUTE → LINE MUTE)
Q320 : MS SENSE SWITCH (PLAY → OFF)
Q321 : INVERTER (PLAY → PLAY)
Q326 : BLANK DETECTOR
Q322,323, Q327-2/2 : LEADER TAPE DET.
Q324 REEL MOTOR DRIVER
V103 : LEADER TAPE DET. ADJ
Q325 ASSIST MOTOR DRIVER
Q332 : INDICATOR DRIVE BUFFER
Q327-1/2 : SENSING END DETECTOR
Q314 REEL MOTOR TORQUE SELECTOR (PLAY → ON)
MECHANISM MODE CODE ENCODER
TAPE TRANSPORT UNIT (3/5)
(TAPE END SENSOR) NJL5154E
CAPSTAN MOTOR RXM-125
REEL MOTOR RXM-122
ASSIST MOTOR RXM-134
TAPE TRANSPORT UNIT (4/5)
(LEADER TAPE SENSOR) RXC-049
TAPE TRANSPORT UNIT (5/5)
dbx UNIT
Q913 : dbx IC
Q901,902 BUFFER AMP
Q903,904 : SWITCHING (PB → ON)
Q907~910 : LOW PASS FILTER
ENCODE / DECODE
OP AMP
Q911,912 : SWITCHING (REC → ON)
V901 : RECOVERY TIME ADJ
Q915 : VOLTAGE REGULATOR
Q916 : SWITCHING (PB → ON)
Q917~919 : SWITCHING (REC → ON)
Q914 : FLAT AMP
Q901~912,915,919 2SC1740SLN
Q913 AN6291
Q914 M5218L
Q916~918 2SA933S
D901,902 1S2473
D903 MTZ5.6A or RD5.6EB1
C917,918 : RCH-069 or RCH-070
V901 : VRTB6VS222
POWER SWITCH UNIT
S1401 : POWER RSA-063
C1401 0.01/AC400 RCG-006 or RCG-009
AC 120V 60Hz
AC POWER CORD RDG-048
T1 RTT-416
FU2 1.25A REK-073
FU1 500mA REK-077
POWER SUPPLY UNIT
Q408 : POWER OFF MUTING
Q413 : POWER OFF SG
Q409~412 : RESET SG
Q402 : VOLTAGE REGULATOR (+13.5V)
Q401,403 : VOLTAGE REGULATOR (+13V)
Q404,405 : VOLTAGE REGULATOR (-26.5V)
Q1201 VOLTAGE REGULATOR (+5V)
Q407 RIPPLE FILTER
Q406,1301 : VOLTAGE REGULATOR (-18.5V)
TRANSISTOR B UNIT Q1201 2SD1265
TRANSISTOR A UNIT Q1301 2SD1265
Q401,402 2SD1276
Q403,407,409~411,413 2SC1740S
Q404 2SD1265
Q405,406,408,412 2SA933S
D401 S4VB20F
D403~406 1SR35-100A
D407,414~417,420,421 1SS254
D409 RD15EB3 or MTZ15C
D410,411 RD5.6EB or MTZ5.6
D412 RD27EB or MTZ27
D413 RD20EB or MTZ20
D418 1B2Z1-LC2
D419 1B2C1-LC2
J16
J15
J13
J24
J06



1. RESISTORS:
Indicated in Ω, ¼W, ⅛W, ±5% tolerance unless otherwise noted k; kΩ, M; MΩ, (F); ±1%, (G); ±2%, (K); ±10%, (M); ±20% tolerance

2. CAPACITORS:
Indicated in capacity (μF)/voltage (V) unless otherwise noted p; pF. Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE CURRENT.
; DC voltage (V) at no input signal

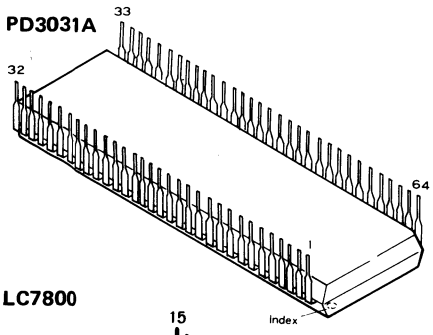
4. OTHERS:
; Signal route.
; Adjusting point.
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
※ marked capacitors and resistors have parts numbers.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

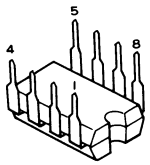
SWITCHES:
RESET SWITCH UNIT
S1101 : COUNTER RESET N.O. (NORMAL OFF)

External Appearance of Transistors and ICs

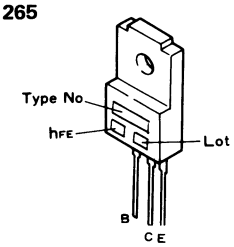
PD3031A



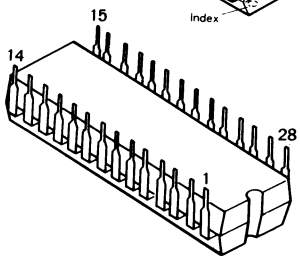
M5233P



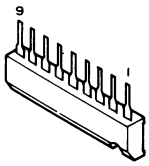
2SD1276
2SD1265



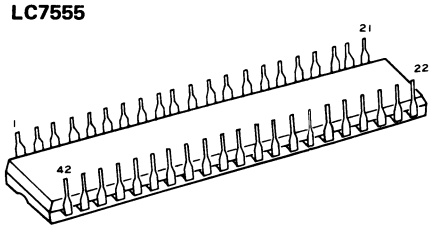
LC7800



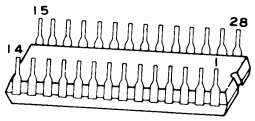
BA335



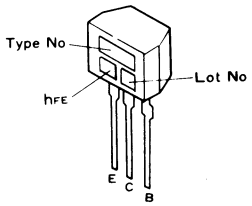
LC7555



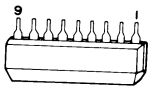
AN7370K



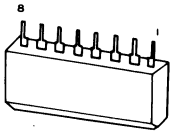
2SC1740S
2SA933S
2SC1740SLN



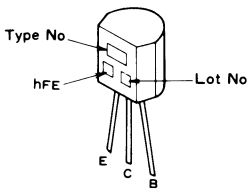
TA7318P



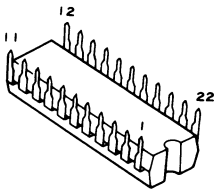
M5220L
M5218L



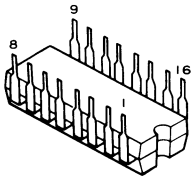
2SC2060



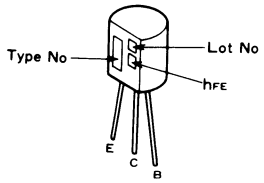
PDE004



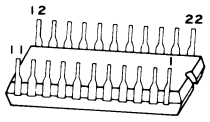
TC5066BP
TC5067BP



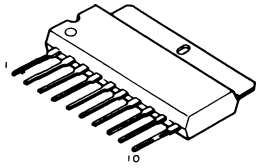
2SC2240



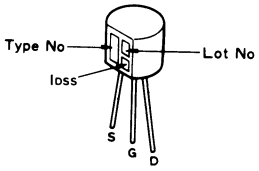
AN6291



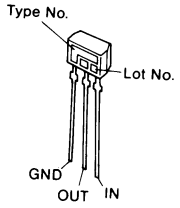
BA6109



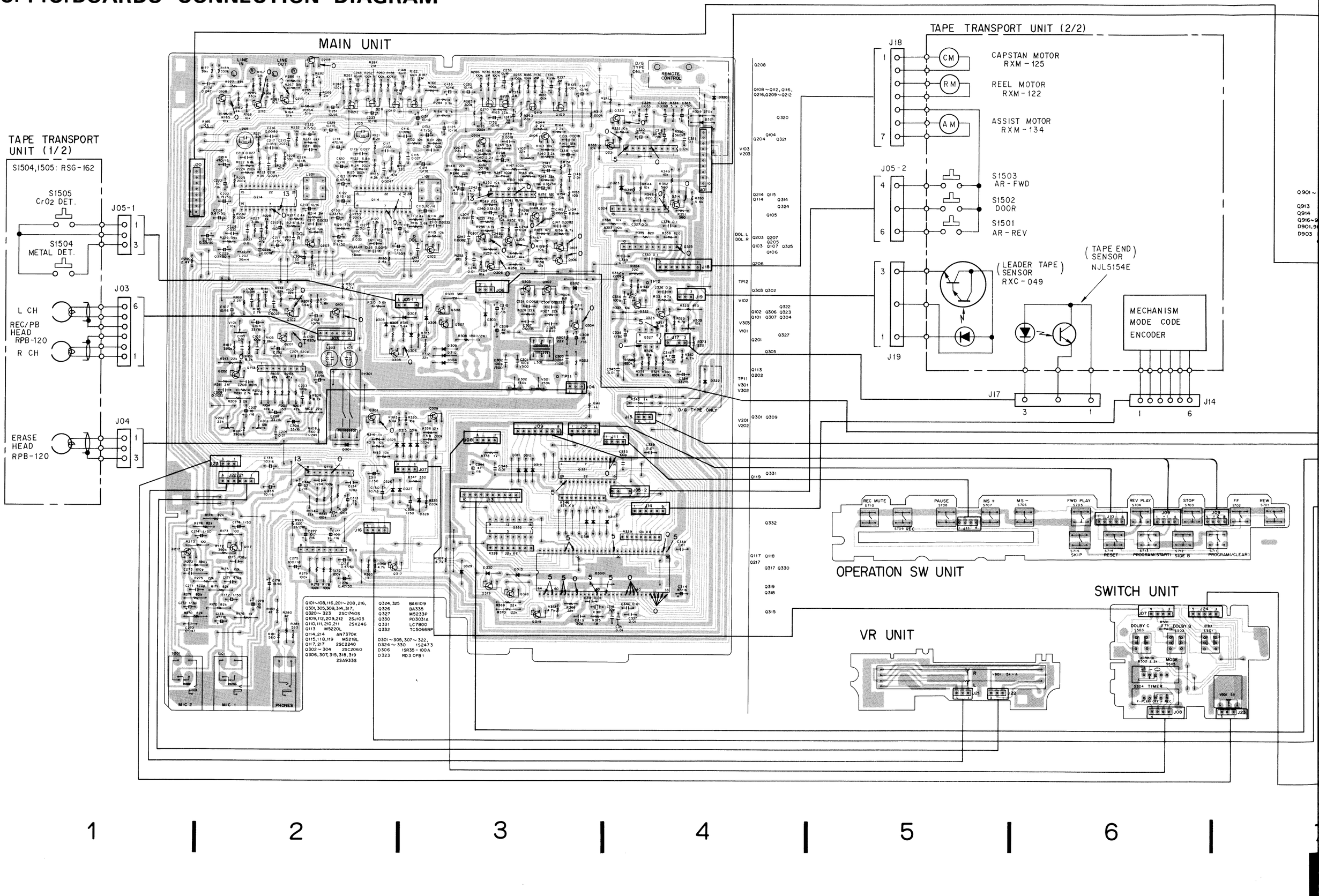
2SK246
2SJ103



DTC143XS



8. P.C.BOARDS CONNECTION DIAGRAM



6 7 8 9 10 11 12

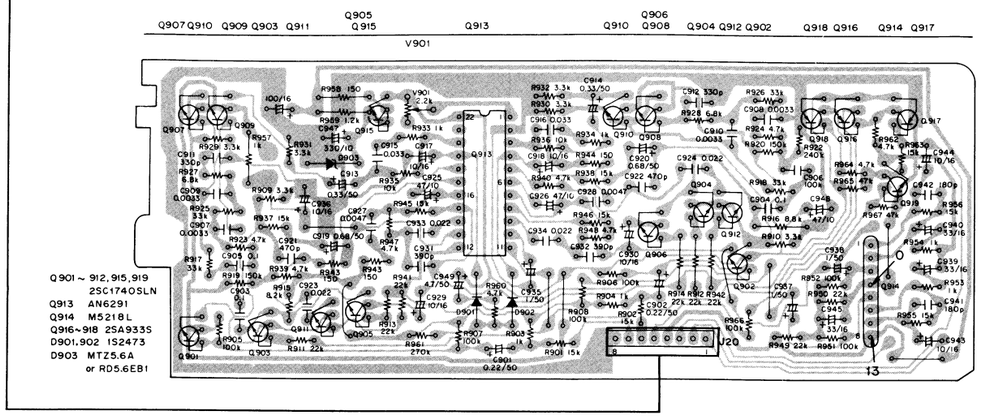
A

B

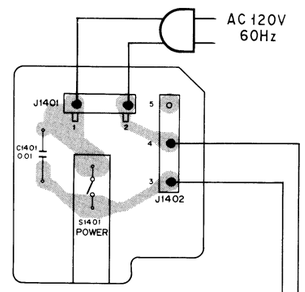
C

D

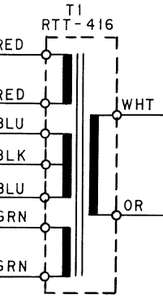
dbx UNIT



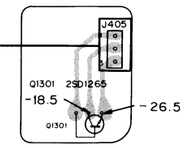
POWER SWITCH UNIT



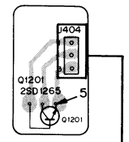
T1 RTT-416



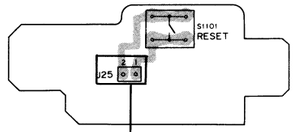
TRANSISTOR A UNIT



TRANSISTOR B UNIT



RESET SWITCH UNIT



MECHANISM MODE CODE ENCODER

J14

1 6

REV. PLAY S704 | STOP S703 | FF S702 | REW S701

PROGRAM/START | SIDE B | PROGRAM/CLEAR

RESET S715

WITCH UNIT

DOLBY C S503 | DOLBY B S502 | dbx S501 | MODE S506 | S504 TIMER

J07 J24 J08 J23 VR01 5K

Q601, 622, 623 2SC1740S
Q603 LC7555
Q604 TA7318P
Q607 ~ 610 TC5066BP
Q611, 612 TC5067BP
Q613 PDE004
Q614 ~ 616, 618, 624 2SA933S

Q619 ~ 621, 625 DTC143XS
D601, 602 1SS254

D607 RD9.1EB1 or RD9.1EB2 or MTZ9.1A or MTZ9.1B

J16 J13 J02 J15 J25 J24 J06

FL FIP13AW24Y

V601

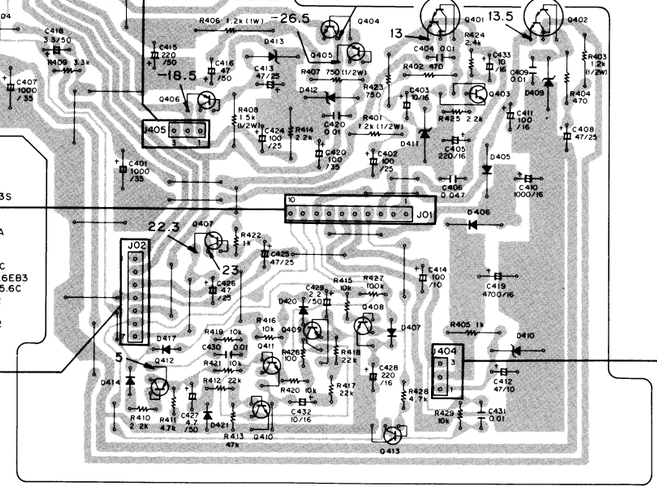
Q610 Q604 Q609 Q608 Q601 Q607 Q603 Q625 Q616 Q621 Q620, Q619, Q624 Q615 Q618 Q616 Q623 Q622 Q612 Q613 Q611

FL UNIT

Q401, 402 2SD1276
Q403, 407, 409 ~ 411, 413 2SC1740S
Q404 2SD1265
Q405, 406, 408, 412 2SA933S

D401 S4VB20F
D403 ~ 406 ISR35-100A
D407, 414 ~ 417, 420, 421 1SS254
D409 RD15EB3 or MTZ15C
D410, 411 RD5.6EB2 or RD5.6EB3 or MTZ5.6B or MTZ5.6C
D412 RD27EB1 or RD27EB2 or MTZ27A or MTZ27B
D413 RD20EB1 or RD20EB2 or MTZ20A or MTZ20B
D418 1B2Z1-LC2
D419 1B2C1-LC2

J402 J403 J401 D401 D419 D418 D415 D416 D403 D404 FU1 500mA FU2 1.25A



Q406 Q407 Q412 Q411 Q410 Q404 Q405 Q409 Q408 Q413 Q401 Q403 Q402

POWER SUPPLY UNIT

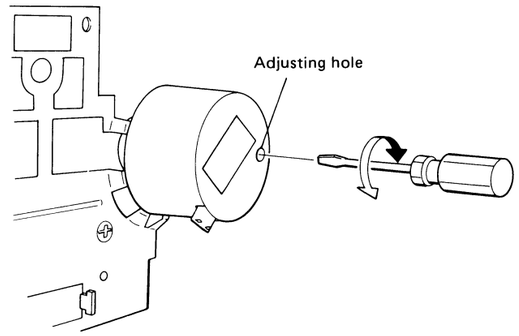
6 7 8 9 10 11 12

9. ADJUSTMENTS

9.1 MECHANICAL ADJUSTMENT

1. Tape Speed Adjustment Check

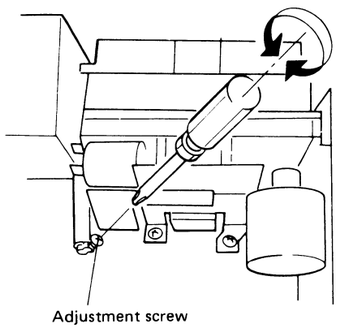
Mode	Test tape	Adjustment position	Rating (playback frequency)
PLAY	STD-301 (3kHz)	Variable Resistor control	3010Hz ± 5Hz



2. Door Damping Check And Adjustment

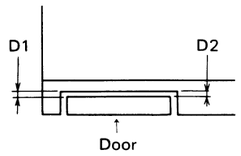
Adjustment position	Specifications
Cylinder adjustment screw If door bounces back : turn clockwise If door opens in two stpes : turn counter clockwise	Open the door (eject operation) but with no cassettes loaded. The door should open smoothly in a single action without bouncing back at the fully open position.

<Reference> Door opening speed: 0.8 sec. ±0.3 sec. (normal temperature)



3. Door Position Check And Adjustment

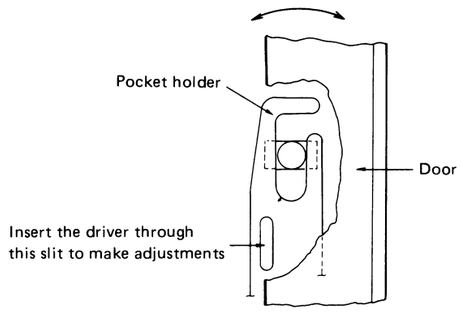
- The door position dimensions when viewed from above must conform with the following specifications.



<D dimensions>

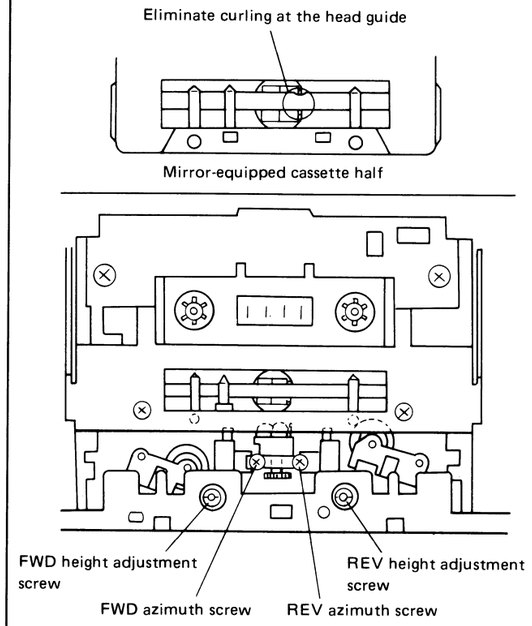
Standard value	1.2 mm
Permissible values	0.9 thru 1.6 mm
Difference between left and right	|D1 − D2| < 0.4 mm

- If the above ratings are not satisfied, adjust bending the pocket holder as shown below.



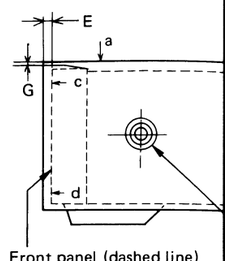
4. Tape Transport Adjustment
(remove cassette door)

Mode	Adjustment location	Specifications
FWD STOP	FWD azimuth screw	The head must be parallel with the tape transport direction when viewed from above with the door frame open.
REV STOP	REV azimuth screw	
Load a mirror-equipped cassette half, and lift the head base by hand to bring the tape into contact with the tape guide.		
STOP	Height adjustment screws (both left and right)	Tape should pass through through the center of the tape guide (rough visual adjustment).
FWD PLAY	Left height adjustment screw	Adjust the "upstream" tape guide so that tape does not curl at the guide.
REV PLAY	Right height adjustment screw	



5. Side Wood Panel P
(CT-S88R/D/G)

- Dimensions for the side must conform with the



E dimensions . . . . . .
Inclination (section c and
F dimension
Inclination (sections a an
G dimension . . . . . .

- If the above dimension setscrews and shift the amounts before retighte
- The left hand panel is a

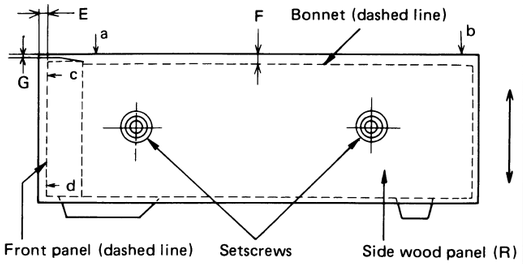
6. Playback Mode Eje

- The tape deck should n pressed (taking up the s playback mode.
- The tape deck should n height of 5 cm with the facing down.

tions
e parallel
nsport di-
wed from
oor frame
ase by hand
through
er of the
visual
eam" tape
e does not
djustment

5. Side Wood Panel Position Check & Adjustment
(CT-S88R/D/G)

- Dimensions for the side wood panels as seen from the side must conform with the following specifications.



E dimensions	1±0.5 mm
Inclination (section c and d)	|Ec − Ed| < 0.5 mm
F dimension	
Inclination (sections a and b)	|Fa − Fb| < 0.5 mm
G dimension	0 − 2 mm
	(L − R difference < 1 mm)

- If the above dimension limits are not satisfied, loosen the two setscrews and shift the panel up/down left/right by appropriate amounts before retightening the screws.
- The left hand panel is adjusted in the same way.

6. Playback Mode Eject Check

- The tape deck should not stop when be EJECT button is pressed (taking up the slackness in the thrust direction) during playback mode.
- The tape deck should not stop when the set is dropped from a height of 5 cm with the front panel, and then the two sides facing down.

9.2 ELECTRICAL ADJUSTMENTS

Pre-requisities for Electrical Adjustments

1. All mechanical adjustments must have been completed.
2. The heads must be cleaned and demagnetized.
3. Let the set warm up for several minutes before starting.
4. Set signal level to 0dBv=1Vrms.
5. Connect a 50 kohm (47 to 52 kohms permissible) load resistance across the output terminals.
6. Leave all DOLBY NR and dbx switches off unless specified otherwise.

Test Tapes

Playback system adjustments	:	STD-331B (see Fig. 9-1)
NORMAL blank tape	:	STD-608A
CrO_2 blank tape	:	STD-603
METAL blank tape	:	STD-610

List of Adjustments

1. Head azimuth adjustment
2. Playback equalizer adjustment
3. Playback level adjustment
4. Leader tape detection operation adjustment
5. Level Meter adjustment
6. Recording and playback frequency response adjustment
7. Recording level adjustment
8. dbx system recovery time adjustment

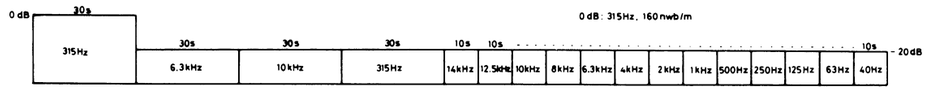


Fig. 9-1 STD-331B test tape

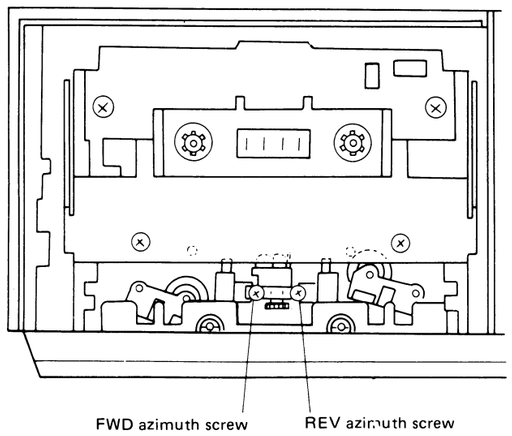


Fig. 9-2 Head azimuth adjustment

Test tape	STD-331B
DOLBY NR switch	OFF

- Right channel is compensated by −0.5dB at 125Hz and by −1dB at 63Hz because of the edge effect.

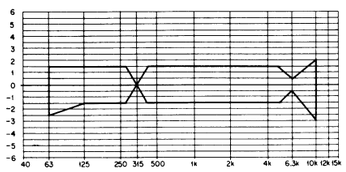


Fig. 9-3 Playback frequency response permissible zone

1. Head azimuth adjustment

• Adjust V102 and V202 to maximum positions, and V101 and V201 to mechanical center positions.

	Mode	Input signal & test tape	Adjustment position	Measuring position	Adjustment value	Remarks
1	FWD-PLAY	Play the 10kHz/–20dB portion of the STD-331B test	FWD azimuth screw (Fig. 9-2)	Left and right line output terminals	Maximum playback signal level	
2	REV-PLAY		REV azimuth screw (Fig. 9-2)			

2. Playback equalizer adjustment

	Mode	Input signal & test tape	Adjustment position	Measuring position	Adjustment value	Remarks
1	FWD-PLAY	Play the 315Hz and 6.3kHz/–20dB portion of the STD-331B test tape	V101 (L ch) V201 (R ch)	Left and right line output terminals	Adjust the 6.3kHz level to 0dB in respect to the 315Hz playback level	±0.5dB variation permissible
2	FWD/REV PLAY	Play various frequencies at –20dB on the STD-331B test tape	Check		The results must lie in the zone shown in Fig. 9-3.	

3. Playback level adjustment

• Execute this adjustment carefully since the result is used in setting the Dolby NR level.

	Mode	Input & test tape	Adjustment position	Measuring position	Adjustment value	Remarks
	FWD-PLAY	Play the 315Hz/0dB portion of the STD-331B test tape	V102 (L ch)	TP (DOL.L) (*)	–17.9dBv (127.3mV)	
			V202 (R ch)	TP (DOL.R)(*)		

* DOL.L is the left hand lead wire at R116, and DOL.R is the left hand lead wire at R216.

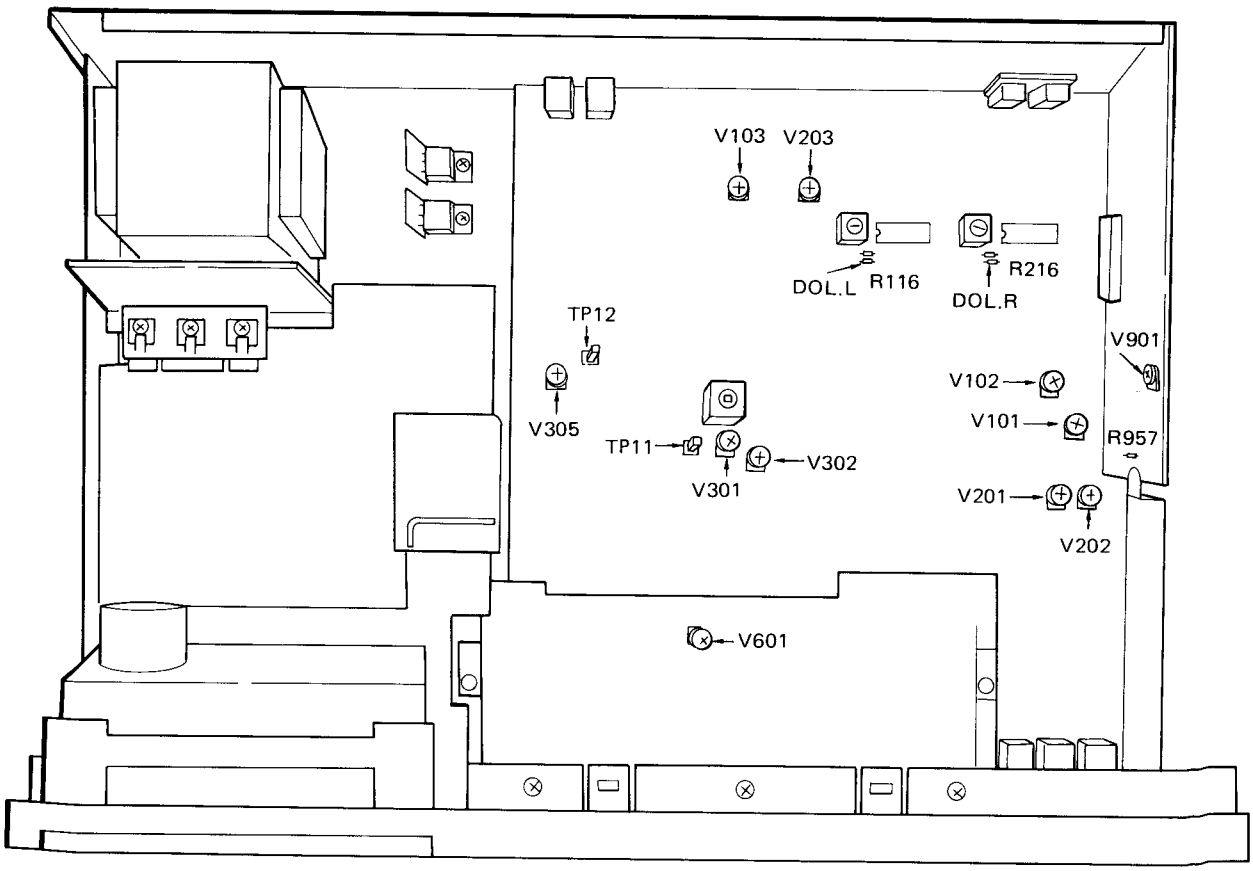


Fig. 9-4 Adjustment locations

4. Leader tape detection operation adjustment

	Mode	Input signal & test tape	Adjustment position	Measuring position	Adjustment value	Remarks
1	PLAY	No input – load an empty cassette half.	V305	TP12 (LEADER)	$1V^{+0.2}_{-0}V$	
2	• Check that the leader tape is correctly detected (in both FWD and REV directions when in endless reverse mode).					

5. Level meter adjustment

	Mode	Input signal & test tape	Adjustment position	Measuring position	Adjustment value	Remarks
1	REC/ PAUSE	Apply a 315Hz/–10dBv signal to the line input terminals, and load the STD-608A test tape	REC LEVEL controls	TP (DOL.L) TP (DOL.R)	–14.9dBv (180mV)	
2			V601	Turn V601 fully counterclockwise, and turn slowly clockwise and stop when the "+3VU" segments come on.		

6. Recording and playback frequency response adjustment

• Leave the DOLBY NR switch off.

	Mode	Input signal & test tape	Adjustment position	Measuring position	Adjustment value	Remarks
1	REC/ PAUSE	Apply a 315Hz–30dBv signal to the line input terminals and load the STD-608A test tape.	REC LEVEL controls	TP (DOL.L) TP (DOL.R)	–37.9dBv (12.7mV)	
2	FWD REC→ PLAY	Record and play 315Hz and 6.3kHz signals at an input level of –30dBv.	V301 (L ch) V302 (R ch)	Left and right line output terminals	Adjust through repeated record/ playback cycles to obtain a 6.3kHz playback level of +1.0dB in respect to the 315Hz signal.	Variations from +0.5dB to +1.5dB are permissible.
3	REC → PLAY	With an input level of –30dBv record and play signals from 63Hz to 12kHz).	Check		Specifications for FWD and REV, and DOLBY NR OFF and ON (types B and C) (see Fig. 9-5) must be satisfied (for both FWD and REV).	
4	If the specifications are not satisfied (including the following checks), readjust the 6.3kHz playback level to within –1.5dB and +2.5dB in respect to the 315Hz signal in step 2.					
5	Repeat the step 3 check using the STD-603 test tape. The specifications shown in Fig. 9-6 are to be satisfied.					
6	Repeat the step 3 check using the STD-610 test tape. The specifications shown in Fig. 9-7 are to be satisfied.					
7	After completing the adjustment, check the distortion and ensure against "under bias".					

7. Recording level adjustment

• Leave the DOLBY NR switch off.

	Mode	Input signal & test tape	Adjustment position	Measuring position	Adjustment value	Remarks
1	REC/ PAUSE	Apply a 315Hz/–10dBv signal to the line input terminals, and load the STD-608A test tape.	REC LEVEL controls	TP (DOL.L) TP (DOL.R)	–17.9dBv (127.4mV)	
2	REC → PLAY	Record and play the 315Hz/ –10dBv signal.	V103 (L ch) V203 (R ch)		Adjust through repeated record/ playback cycles until a playback signal level of –17.9dBv (127.4mV) is obtained.	
3	REC → PLAY	Record and play the 315Hz/ –10dBv signal on STD-603.	Check		–17.9±1.5dBv	
4	REC → PLAY	Record and play the 315Hz/ –10dBv signal on STD-610.	Check		–17.9±1.5dBv	

8. dbx system recovery time adjustment

	Mode	Input signal & test tape	Adjustment position	Measuring position	Adjustment value	Remarks
	STOP	None	V901	R957 terminals	DC15mV	

Test tape : STD-608A (NORM)

DOLBY NR switch : OFF	DOLBY NR switch : ON (B type)	DOLBY NR switch : ON (C type)

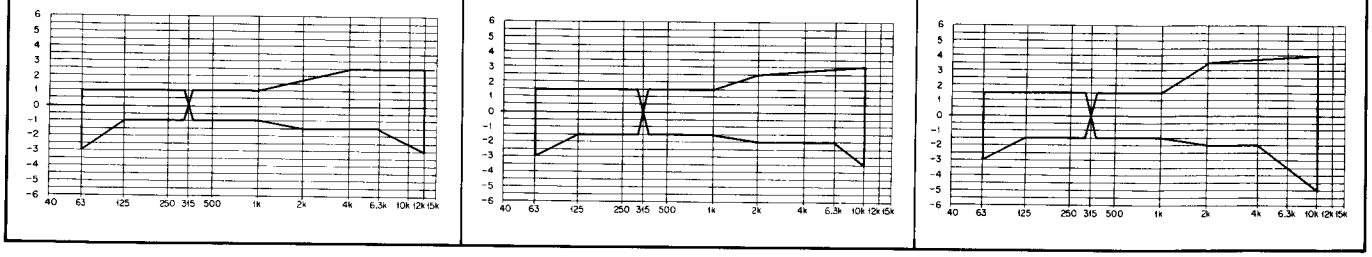


Fig. 9-5 Recording & playback frequency response tolerance zone (NORM)

Test tape : STD-603 (CrO_2)

DOLBY NR switch : OFF	DOBLY NR switch : ON (B type)	DOLBY NR switch : ON (C type)

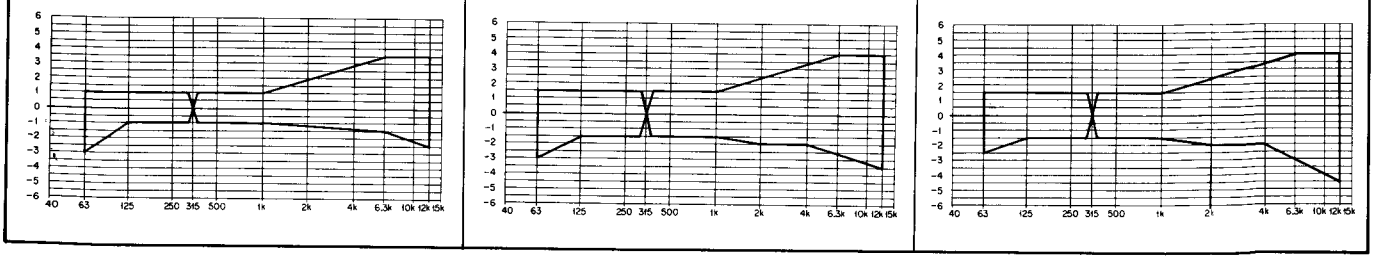


Fig. 9-6 Recording & playback frequency response tolerance zone (CrO_2)

Test tape : STD-610 (METAL)

DOLBY NR switch : OFF	DOLBY NR switch : ON (B type)	DOLBY NR switch : ON (C type)

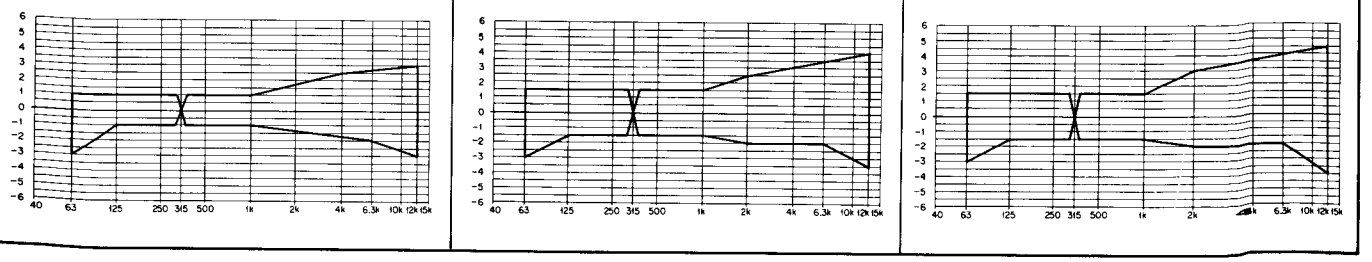
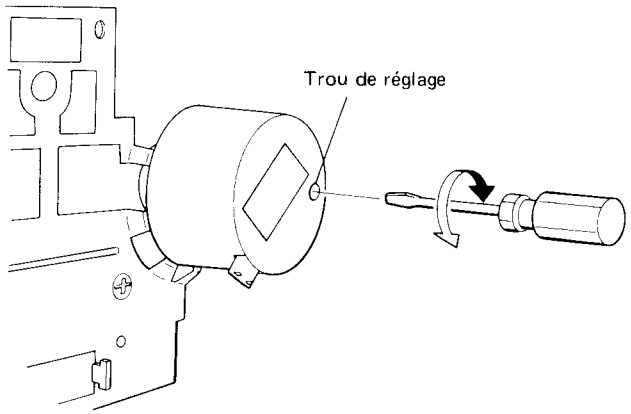


Fig. 9-7 Recording & playback frequency response tolerance zone (METAL)

9. RÉGLAGE

1. Contrôle du réglage de la vitesse de défilement

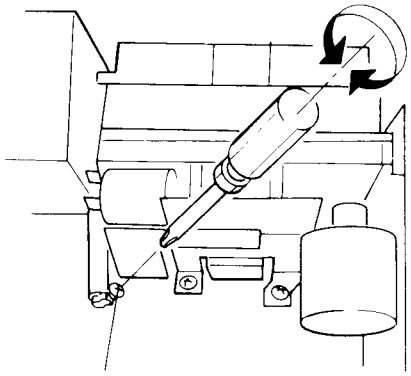
Mode	Bande d'étalonnage	Emplacement du réglage	Etalonnage caractéristique (fréquence de lecture)
LECTURE	STD-301 (3kHz)	Contrôle de résistance variable	3010Hz±5Hz



2. Contrôle et réglage d'amortissement de la trappe à cassette

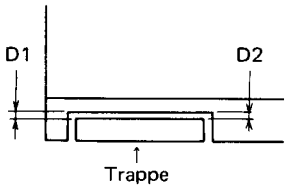
Emplacement du réglage	Caractéristiques
Vis de réglage de cylindre Si la trappe se dégage brutalement en arrière: tourner dans le sens des aiguilles d'une montre. Si la trappe se dégage en deux fois: tourner dans le sens contraire des aiguilles d'une montre.	Ouvrir la trappe à cassette (commande d'éjection), mais sans présence de cassette à l'intérieur. La trappe à cassette doit s'ouvrir progressivement, sans à-coups, sans se dégager brutalement en arrière et en deux temps, jusqu'à l'ouverture totale.

<Référence> Vitesse d'ouverture de la trappe à cassette: 0,8±0,3 sec. (à la température normale)



3. Contrôle et réglage de positionnnemente de trappe à cassette

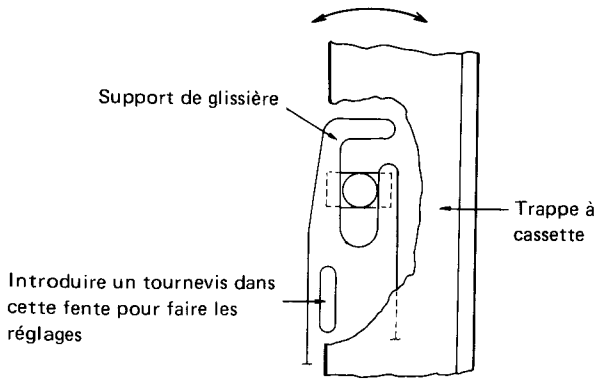
- Les dimensions de positionnement de la trappe sont conformes aux caractéristiques suivantes après inspection visuelle par dessus de la platine.



<D Dimensions>

Valeur nominale:	1,2 mm
Tolérances:	0,9 à 1,6 mm
Différences la gauche et la droite:	|D1 – D2| < 0,4 mm

- Si les tolérances qui sont mentionnées ci-dessus ne sont pas satisfaites, ajuster en pliant le support de glissière de la valeur indiquée en procédant comme représenté sur le schéma ci-dessous.

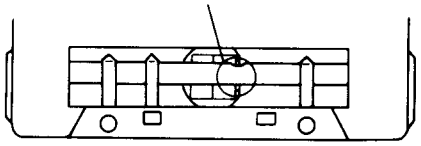


4. Réglage du système de transport de bande

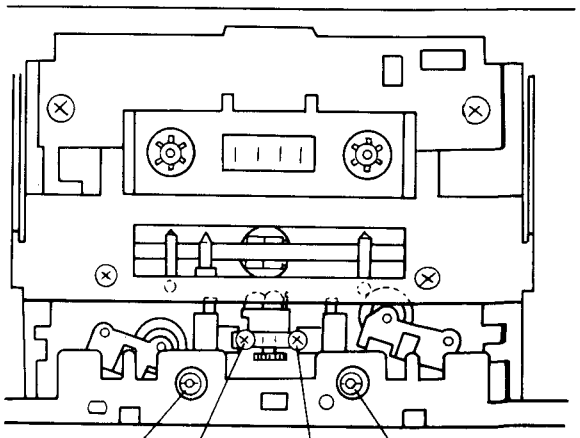
(retirer la trappes à cassette)

Mode	Emplacement du réglage	Caractéristiques
Arrêt en défilement normal	Vis de réglage d'azimut en défilement normal	Lorsque le montant de la trappe à cassette est ouvert, la tête doit être parallèle au sens de défilement de la bande lorsqu'elle est regardée par-dessus.
Arrêt en défilement inverse	Vis de réglage d'azimut en défilement inverse	
Charger un demi-boftier de cassette équipé d'un miroir et relever l'embase de la tête à la main pour que la bande touche le guide de bande.		
Arrêt	Vis de réglage de hauteur (gauche et droite)	Contrôler (visuellement) si la bande est positionnée à la hauteur de la section centrale du guide de bande.
Lecture en défilement normal	Vis de réglage de hauteur gauche	Ajuster la position du premier guide de bande pour être certain que la bande ne forme pas de plis au niveau du guide.
Lecture en défilement inverse	Vis de réglage de hauteur droite	

Aucune formation de plis ne doit se produire à la hauteur du guide de bande



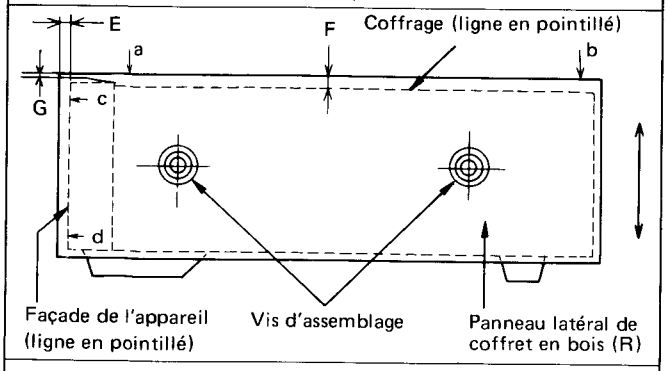
Demi-boftier de cassette équipé d'un miroir


Vis de réglage de hauteur en défilement normal
Vise de réglage d'azimut en défilement normal
Vis de réglage de hauteur en défilement inverse
Vis de réglage d'azimut en défilement inverse

5. Réglage et contrôle de position du panneau latéral de coffret en bois

(CT-S88R/D/G)

- Les dimensions des panneaux latéraux de coffret en bois vus de côté doivent être conforms aux caractéristiques suivantes.



Dimension E	1±0,5 mm
Inclinaison (sections c et d)	|Ec − Eb| < 0,5 mm
Dimension F	
Inclinaision (sections a et b)	|Fa − Fb| < 0,5 mm
Dimension G	0 à 2 mm (Différence L − R <1 mm)

- Si les dimensions mentionnées ci-dessus ne sont pas satisfaites, desserrer le deux vis d'assemblage et dcaler le panneau dans le sens vertical ou dans le sens horizontal de la valeur nécessaire et resserrer les vis.

- La position du panneau placé du côté gauche peut être ajustée de la même façon.

6. Contrôler d'éjection en mode de lecture

- La platine magnétophone ne doit pas s'arrêter quand la touche EJECT est pressée (rattrapage du manque de tension de la bande dans la direction de la poussée) au cours du mode de lecture.
- La platine magnétophone ne doit pas s'arrêter quand l'appareil est lâché d'une hauteur de 5 cm avec la façade dirigée vers le sol puis les côtés tour à tour dirigés vers le sol.

9.1 RÉGLAGES ÉLECTRIQUES

Conditions nécessaires pour effectuer les réglages électriques

1. Tous les réglages des mécanismes doivent avoir été préalablement réalisés.
2. Les têtes magnétiques doivent être propres et démagnétisées.
3. Laisser chauffer les platines pendant quelques minutes avant de commencer à faire les réglages électriques.
4. Caler le niveau du signal de référence à 0dBv= 1V effi.
5. Raccorder une résistance de charge de 50K-ohms entre les bornes de sortie de ligne (les charges se trouvant dans les limites de 47K à 52K-ohms sont tolérées).
6. A moins d'une indication contraire, tous les commutateurs DOLBY NR et dbx doivent se trouver en position OFF.

Bandes d'étalonnage

Réglages des systèmes de lecture: STD-331B
(voir la Fig. 9-1)
Bande vierge ordinaire (NORMAL) : STD-608A
Bande vierge au chrome (CrO_2) : STD-603
Bande vierge au fer (METAL) : STD-610

Liste des réglages à exécuter

1. Réglage d'azimut de tête magnétique
2. Rélage de l'égalisateur de lecture
3. Réglage du niveau de lecture
4. Réglage de détection de bande-amorce
5. Réglage de décibelmètre
6. Calage de réponse en fréquence d'enregistrement et de lecture
7. Réglage du niveau d'enregistrement
8. Réglage de durée de rétablissement du système dbx

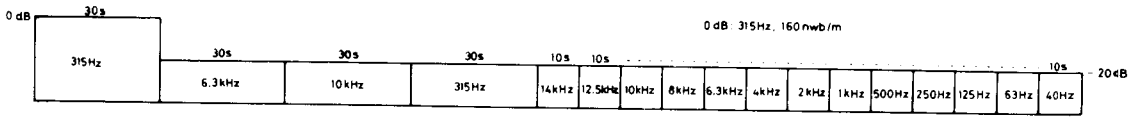


Fig. 9-1 Bande d'étalonnage STD-331B

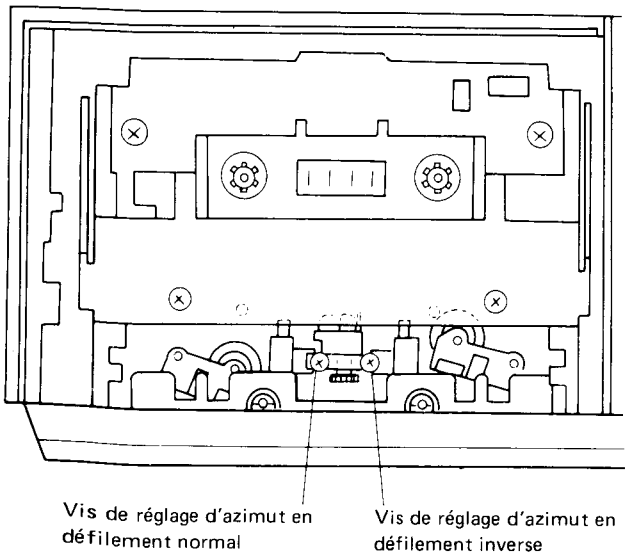


Fig. 9-2 Vis de réglage d'azimut de tête

Bande d'etalonnage	STD-331B
Position du commutateur DOLBY NR	OFF

- Le canal droit est compensé de −0,5dB à 125Hz et de −1dB à 63Hz suite à l'effet marginal.

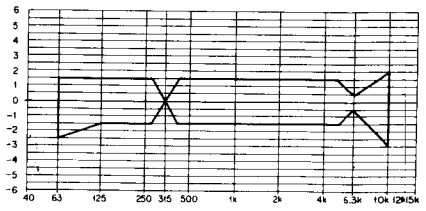


Fig. 9-3 Zone de tolérance de réponse en fréquence de lecture

1. Réglage d'azimut de tête magnétique

- Régler les résistances variables V102 et V202 de façon à obtenir des niveaux maximaux et les résistances variables V101 et V201 sur leur position mécanique centrale.

	Mode	Signal d'entrée appliqué et bande d'étalonnage	Emplacement du réglage	Emplacement de la borne d'étalonnage	Valeur relevée	Observations
1	DÉFILEMENT NORMAL-LECTURE	Lire le passage préenregistré de 10kHz/–20dB de la bande d'étalonnage STD-331B	Vis de réglage d'azimut de tête d'avance normal (voir la figure 9-2)	Bornes de sortie de ligne droite et gauche	Niveau maximum du signal de lecture	
2	LECTURE-DÉFILEMENT INVERSE		Vis de réglage d'azimut de tête d'avance inverse (voir la figure 9-2)			

2. Réglage de l'égalisateur de lecture

	Mode	Signal d'entrée appliqué et bande d'étalonnage	Emplacement du réglage	Emplacement de la borne d'étallonnage	Valeur relevée	Observations
1	DÉFILEMENT NORMAL-LECTURE	Lire le passage préenregistré de 315Hz et de 6,3kHz/–20dB de la bande d'étalonnage STD-331B	V101 (canal gauche) V201 (canal droit)	Bornes de sortie de ligne droite et gauche	Ajuster le niveau de lecture de 6,3kHz à 0dB par rapport au niveau de lecture de 315Hz	±0,5dB d'écart admissible
2	DÉFILEMENT NORMAL-DÉFILEMENT INVERSE LECTURE	Lire plusieur sections de fréquence préenregistrées –20dB de la bande d'étalonnage STD-331B	Confirmer		Les résultats doivent se placer dans la zone représentée sur la figure 9-3	

3. Réglage du niveau de lecture

- Ce réglage servant à étalonner le niveau du DOLBY NR doit être exécuté avec une grande précision.

	Mode	Signal d'entrée appliqué et bande d'étalonnage	Emplacement du réglage	Emplacement de la borne d'étalonnage	Valeur relevée	Observations
1	DÉFILEMENT NORMAL-LECTURE	Lire le passage préenregistré de 315Hz/0dB de la bande d'étalonnage STD-331B	V102 (canal gauche)	TP (DOL.L)(*)	–17,9dBv (127,3mV)	
			V202 (canal droit)	TP (DOL.R)(*)		

* DOL.L est le fil de jonction gauche à R116 et DOL.R est le fil de jonction gauche à R216.

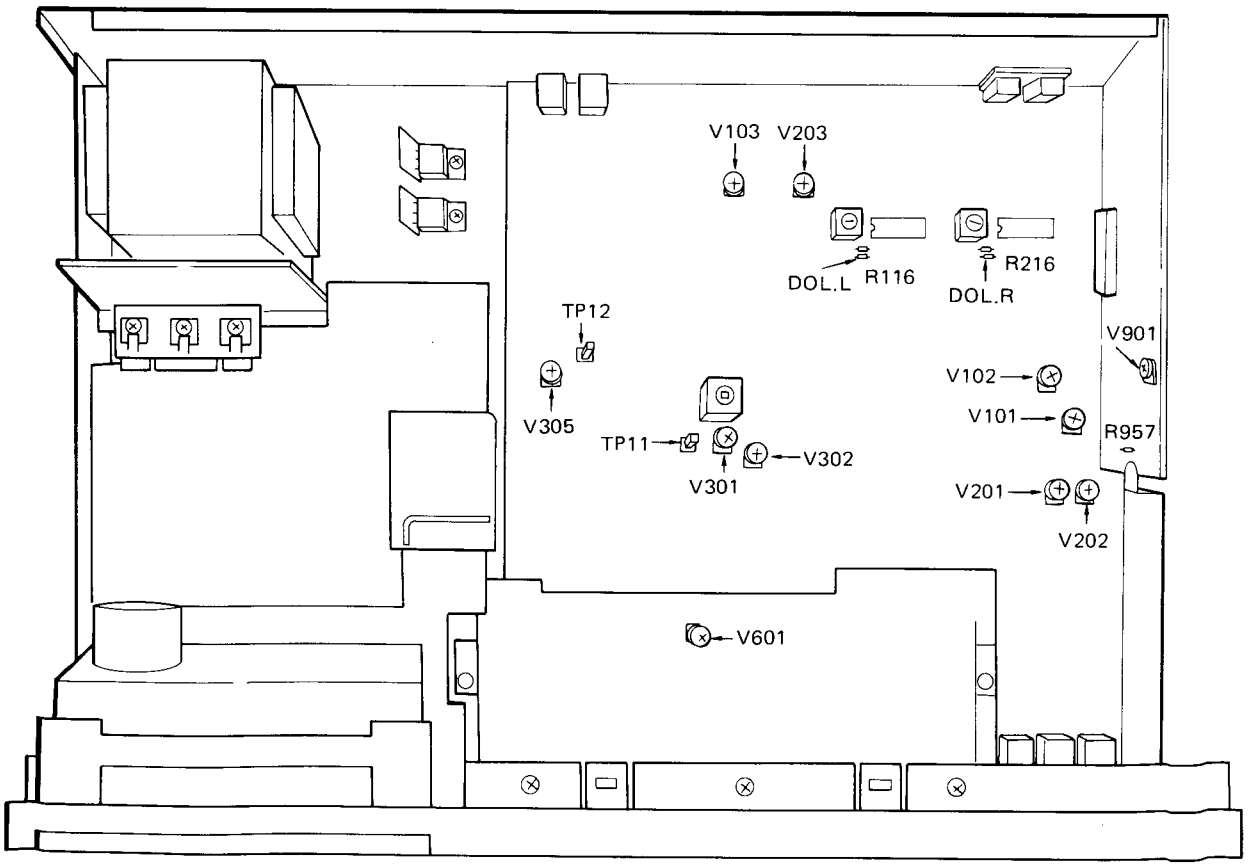


Fig. 9-4 Implantation des composants de réglage

4. Réglage de détection de bande-armorce

	Mode	Signal d'entrée appliqué et bande d'étalonnage	Emplacement du réglage	Emplacement de la borne d'étalonnage	Valeur relevée	Observations
1	LECTURE	Aucun signal injecté; charger une demi-cassette vide	V305	TP12 (BANDE-AMORCE)	$1V^{+0,2}_{-0}V$	
2	• S'assurer que la bande-amorce est correctement détectée (dans les deux sens: défilement normal et défilement inverse quand la platine est réglée en mode continu)					

5. Réglage des décibelmètres

	Mode	Signal d'entrée appliqué et bande d'étalonnage	Emplacement du réglage	Emplacement de la borne d'étalonnage	Valeur relevée	Observations
1	PAUSE À L'ENREGISTREMENT	Appliquer un signal de 315Hz/ −10dBv aux bornes d'entrée de ligne et charger la bande d'étalonnage STD-608A	Potentiomètres de niveau d'enregistrement	TP (DOL.L) TP (DOL.R)	−14,9dBv (180mV)	
2			V601	Tourner complètement V601 dans le sens contraire des aiguilles d'une montre puis la tourner lentement dans le sens des aiguilles d'une montre et s'arrêter dès que les segments "+3VU" s'allument		

6. Réglage de réponse en fréquence de lecture et d'enregistrement

• Conserver le commutateur DOLBY NR en position OFF.

	Mode	Signal d'entrée applique et bande d'étalonnage	Emplacement du réglage	Emplacement de la borne d'étalonnage	Valeur relevée	Observations
1	PAUSE À L'ENREGISTREMENT	Appliquer un signal de 315Hz/ −30dBv aux bornes d'entrée de ligne et charger la bande d'étalonnage STD-608A	Potentiomètres de niveau d'enregistrement	TP (DOL.L) TP (DOL.R)	−37,9dBv (12,7mV)	
2	DÉFILEMENT NORMAL – ENREGISTREMENT → LECTURE	Enregistrer et lire les signaux de 315Hz et 6,3kHz au niveau d'entrée de −30dBv	V301 (canal G) V302 (canal D)	Bornes de sortie de ligne gauche et droite	Obtenir un niveau de lecture de 6,3kHz et de +1dB par rapport au niveau du signal de 315Hz en effectuant des essais successifs d'enregistrement et de lecture	Les écarts admissibles sont de l'ordre de +0,5dB à +1,5dB
3	ENREGISTREMENT → LECTURE	Enregistrer et lire les signaux de 63Hz à 12kHz avec un niveau d'entrée de +30dBv	Contrôler		Les caractéristiques des modes de défilement normal et de défilement inverse, quand le commutateur DOLBY NR est sur OFF et sur ON (types B et C) (voir la figure 9-5) doivent être satisfaites (pour les deux modes précités)	
4	Si les caractéristique ne sont pas satisfaites (y compris les contrôles qui suivent), refaire le réglage du niveau de lecture de 6,3kHz pour obtenir un résultat de plaçant dans les limites spécifiées de −1,5dB et +2,5dB par rapport au niveau du signal de 315Hz, comme indiqué à l'opération 2.					
5	Refaire le contrôle décrit dans l'opération 3 avec la bande d'étalonnage STD-603. Les caractéristiques indiquées par la figure 9-6 doivent être satisfaites.					
6	Refaire le contrôle décrit dans l'opération 3 avec la bande d'étalonnage STD-610. Les caractéristiques indiquées par la figure 9-7 doivent être satisfaites.					
7	Lorsque les réglages sont terminés, contrôler la distorsion et s'en assurer par rapport à la souspolarisation.					

7. Réglage du niveau d'enregistrement

• Conserver le commutateur DOLBY NR en position OFF.

	Mode	Signal d'entrée appliqué et bande d'étalonnage	Emplacement du réglage	Emplacement de la borne d'étalonnage	Valeur relevée	Observations
1	PAUSE À L'ENREGISTREMENT	Injecter un signal de 315Hz/−10dBv par les bornes d'entrée de ligne et charger la bande d'étalonnage STD-608A	Potentiomètres de niveau d'enregistrement	TP (DOL.L) TP (DOL.R)	−17,9dBv (127,4mV)	
2	ENREGISTREMENT → LECTURE	Enregistrer et lire le signal de 315Hz au niveau d'entrée de −10dBv	V103 (canal G) V203 (canal D)		Obtenir un niveau de lecture de −17,9dBv (127,4mV) en effectuant des essais successifs d'enregistrement et de lecture	
3	ENREGISTREMENT → LECTURE	Enregistrer et lire le signal de 315Hz/−10dBv sur la bande d'étalonnage STD-603	Contrôler		−17,9±1,5dBv	
4	ENREGISTREMENT → LECTURE	Enregistrer et lire le signal de 315Hz/−10dBv sur la bande d'étalonnage STD-610	Contrôler		−17,9±1,5dBv	

8. Réglage de durée de recouvrement du système dbx

Mode	Signal d'entrée appliqué et bande d'étalonnage	Emplacement du réglage	Emplacement de la borne d'étalonnage	Valeur relevée	Observations
ARRÊT	Aucun signal	V901	Bornes R957	DC15mV	

Bande d'étalonnage : STD-608A (NORM)

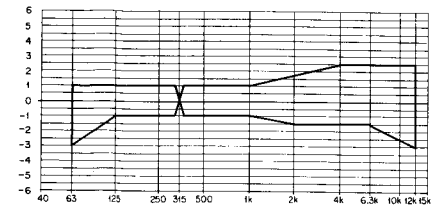
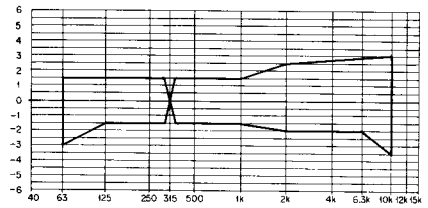
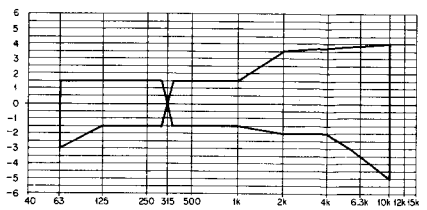
Commutateur DOLBY NR : sur OFF	Commutateur DOLBY NR type-B : sur ON	Commutateur DOLBY NR type-C : sur ON
		

Fig. 9-5 Zones admissibles de réponse en fréquence d'enregistrement et de lecture (NORM)

Bande d'étalonnage : STD-603 (CrO_2)

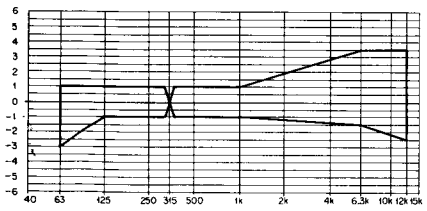
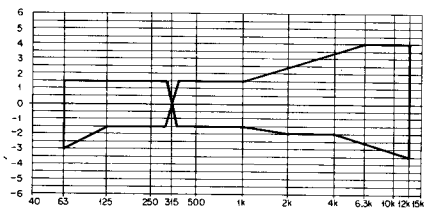
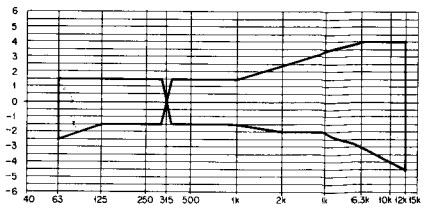
Commutateur DOLBY NR : sur OFF	Commutateur DOLBY NR type-B : sur ON	Commutateur DOLBY NR type-C : sur ON
		

Fig. 9-6 Zones admissibles de réponse en fréquence d'enregistrement et de lecture (CrO_2)

Bande d'étalonnage : STD-610 (METAL)

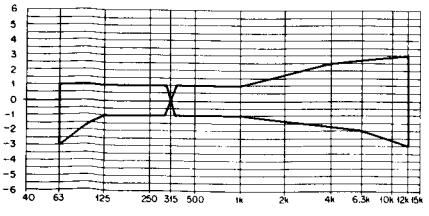
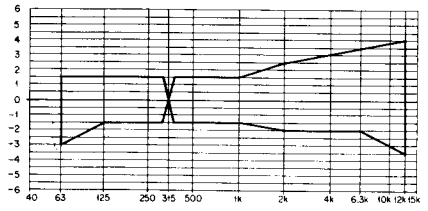
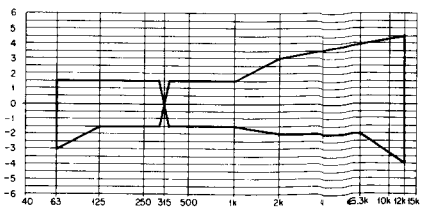
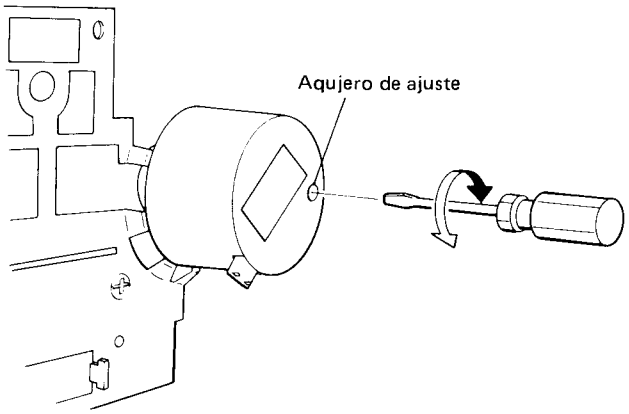
Commutateur DOLBY NR : sur OFF	Commutateur DOLBY NR type-B : sur ON	Commutateur DOLBY NR type-C : sur ON
		

Fig. 9-7 Zones admissibles de réponse en fréquence d'enregistrement et de lecture (METAL)

9. AJUSTE

1. Inspección de ajuste de velocidad de la cinta

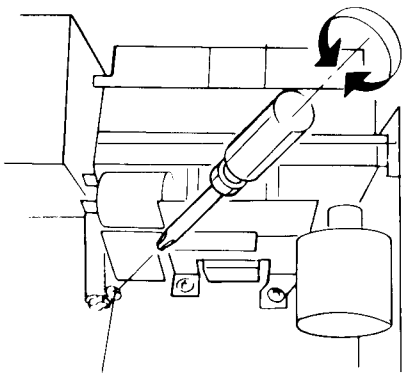
Modo	Cinta de prueba	Posición de ajuste	Capacidad (Frecuencia de reproducción)
PLAY	STD-301 (3kHz)	Control del resistor variable	3010Hz±5Hz



2. Inspección y ajuste de amortiguamiento de la puerta

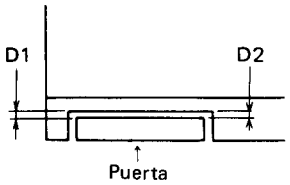
Posición de ajuste		Especificaciones
Tornillo de ajuste del cilindro Si la puerta rebota hacia atrás: Si la puerta se abre en dos pasos:	girar a la derecha girar a la izquierda	Abra la puerta (operación de eyección) sin el cassette cargado. La puerta debe abrirse suavemente en una acción sin rebotar en la posición completamente abierta.

<Referencia> Velocidad de abertura de la puerta: 0,8 seg. ± 0,3 seg. (temperatura normal)



3. Inspección y ajuste de la posición de las puertas

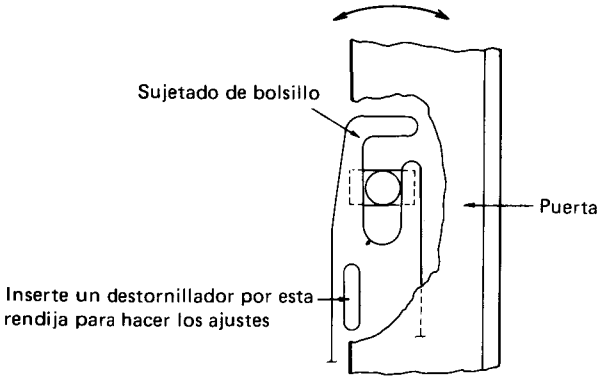
• Las dimensiones de la posición de las puertas vistas de arriba deben estar de acuerdo con las siguientes especificaciones.



<Dimensiones D>

Valor estándar	1,2 mm
Valores permisibles	0,9 a 1,6 mm
Diferencia entre la derecha e izquierda	|D1 – D2| < 0,4 mm

• Si no están de acuerdo con los valores indicados, efectúe el ajuste doblando el sujetador de bolsillo como se muestra abajo.

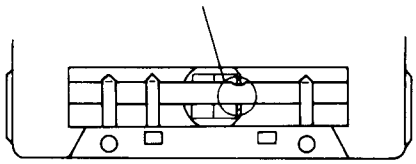


4. Ajuste de la dirección de marcha de la cinta

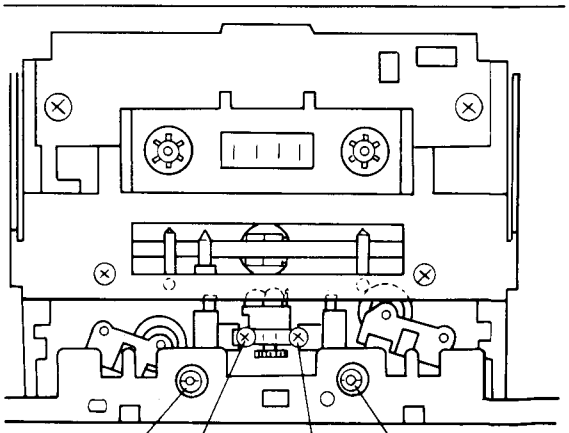
(Quite la puerta de cassette)

Modo	Posición de ajuste	Especificaciones
Parada de avance "FWD STOP"	Tornillo de ajuste azimultal de inversión FWD	El cabezal debe estar en paralelo con la dirección de marcha de la cinta vista de arriba con el marco de puerta abierto
Parada de inversión "REV STOP"	Tornillo de ajuste azimultal de inversión REV	
Coloque una mitad de cassette equipado con espejo, y levante la base del cabezal con la mano para poner la cinta en correcto contacto con la guía de cinta.		
Parada "STOP"	Tornillos de ajuste de altura (derecho e izquierdo)	La cinta debe pasar por el centro de la guía de cinta (ajuste visual)
Avance-reproducción "FWD PLAY"	Tornillo de ajuste de altura izquierdo	Ajuste la guía de cinta de "corriente arriba" de manera que la cinta no se encrespe en la guía
Inversión-reproducción "REV PLAY"	Tornillo de ajuste de altura derecho	

Elimine el encrespado en la guía cabezal

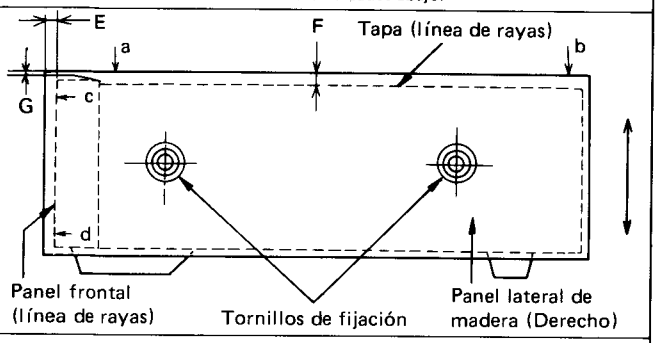


Mitad de cassette con espejo


Tornillo de ajuste de altura de avance "FWD"
Tornillo de ajuste azimutal "FWD"
Tornillo de ajuste azimutal "REV"
Tornillo de ajuste de altura de inversión "REV"

5. Inspección y ajuste de la posición de los paneles laterales de madera (CT-S88R/D/G)

- Las dimensiones de los paneles laterales de madera vistos de los costados deben estar de acuerdo con los valores dados abajo.



Dimensión E	1±0,5 mm
Inclinación (secciones c y d)	|Ec − Ed| < 0,5 mm
Dimensión F	
Inclinación (secciones a y b)	|Fa − Fb| < 0,5 mm
Dimensión G	0 − 2 mm (Diferencia en la derecha e izquierda (1 mm))

- Si no están de acuerdo con los valores especificados, afloje los dos tornillos de fijación y regule el panel hacia arriba/abajo/derecha/izquierda y reapriete los tornillos.
- El panel izquierdo se ajusta de la misma manera.

6. Inspección de la expulsión en el modo de reproducción

- El deck de cinta no debe pararse al presionar el botón de eyección "EJECT" (para quitar la laxitud en la dirección de empuje) durante el modo de reproducción.
- El deck de cinta no debe parar al caer de una altura de 5 cm con su panel delantero hacia abajo y luego ambos costados.

9.1 AJUSTES ELECTRICOS

Requisitos previos para los ajustes eléctricos

1. Todos los ajustes mecánicos deben estar terminados.
2. Los cabezales deben estar limpios y desimanados.
3. Deje que el aparato se caliente por varios minutos antes de iniciar los ajustes.
4. Regule el nivel de señal a 0dBv=1Vrms.
5. Conecte una resistencia de carga de 50 kilo-ohmios (47 a 52 kilo-ohmios permisibles) a través de los terminales de salida.
6. Deje todos los interruptores DOLBY NR y dbx en OFF a menos que se indique de otra manera.

Cintas de prueba

Ajustes del sistema de reproducción	: STD-331B (Véase la Fig. 9-1)
Cinta en blanco NORMAL	: STD-608A
Cinta en blanco CrO_2	: STD-603
Cinta en blanco METAL	: STD-610

Lista de ajustes

1. Ajuste azimutal del cabezal
2. Ajuste del ecualizador de reproducción
3. Ajuste del nivel de reproducción
4. Ajuste de la operación de detección de punta de la cinta
5. Ajuste del indicador de nivel
6. Ajuste de respuesta de frecuencia de grabación y reproducción
7. Ajuste del nivel de grabación
8. Ajuste del tiempo de recuperación del sistema dbx

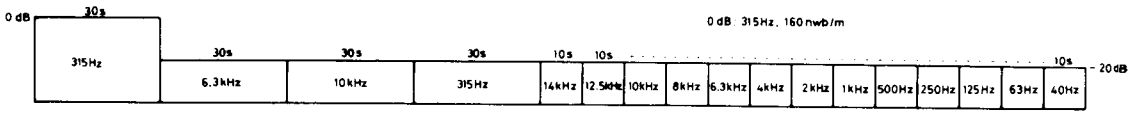


Fig. 9-1 Cinta de prueba STD-331B

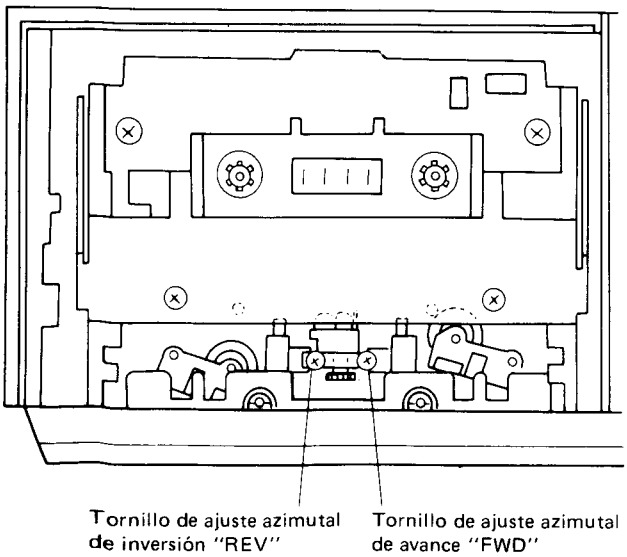


Fig. 9-2 Ajuste azimutal del cabezal

Cinta de prueba	STD-331B
Interruptor DOLBY NR	OFF

- El canal derecho es compensado por –0,5 dB a 125Hz y por –1dB a 63Hz mediante el efecto del borde.

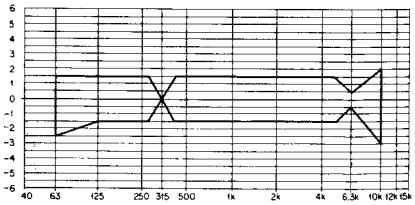


Fig. 9-3 Zona permisible de respuesta de frecuen cia de reproducción

1. Ajuste azimutal del cabezal

• Regule V102 y V202 a las posiciones máximas, y V101 y V201 a las posiciones centrales mecánicas.

	Modo	Señal de entrada y cinta de prueba	Posición de ajuste	Posición de medición	Valor de ajuste	Observaciones
1	Avance-reproducción "FWD-PLAY"	Reproduzca la porción de 10kHz/ −20dB de la cinta de prueba STD-331B	Tornillo de ajuste azimutal de avance "FWD" (Fig. 9-2)	Terminales de salida de línea derecho e izquierdo	Nivel máximo de señal de reproducción	
2	Inversión-reproducción "REV-PLAY"		Tornillo de ajuste azimutal de inversión "REV" (Fig.9-2)			

2. Ajuste del ecualizador de reproducción

	Modo	Señal de entrada y cinta de prueba	Posisión de ajuste	Posición de medición	Valor de ajuste	Observaciones
1	Avance-reproducción "FWD-PLAY"	Reproduzca la porción de 315Hz y 6,3kHz/−20dB de la cinta de pruebe STD-331B	V101 (Canal Izq.) V201 (Canal Der.)	Terminales de salida de línea derecho e izquierdo	Regule el nivel de 6,3kHz a 0dB con respecto al nivel de reproducción de 315Hz	Variación de ±0,5dB permisible
2	Avance/ inversión/ reproducción "FWD/REV/ PLAY"	Reproduzca varias frecuencias a −20dB en la cinta de prueba STD-331B	Revisar		Los resultados deben sercomo se muestran en la zona indicada en la Fig.9-3	

3. Ajuste del nivel de reproducción

• Efectúe cuidadosamente este ajuste, y a que su resultado se usa en la graduación del nivel Dolby NR.

	Modo	Señal de entrada y cinta de prueba	Posición de ajuste	Posición de medición	Valor de ajuste	Observaciones
1	Avance-reproducción "FWD-PLAY"	Reproduzca la porción 315Hz/0dB de la cinta de prueba STD-331B	V102 (Canal Izq.) V202 (Canal Der.)	TP (DOL.L) (*) TP (DOL.R) (*)	−17,9dBv (127,3mV)	

* DOL.L es el cable conductor izquierdo en R116, y DOL.R es el cable conductor izquierdo en R216.

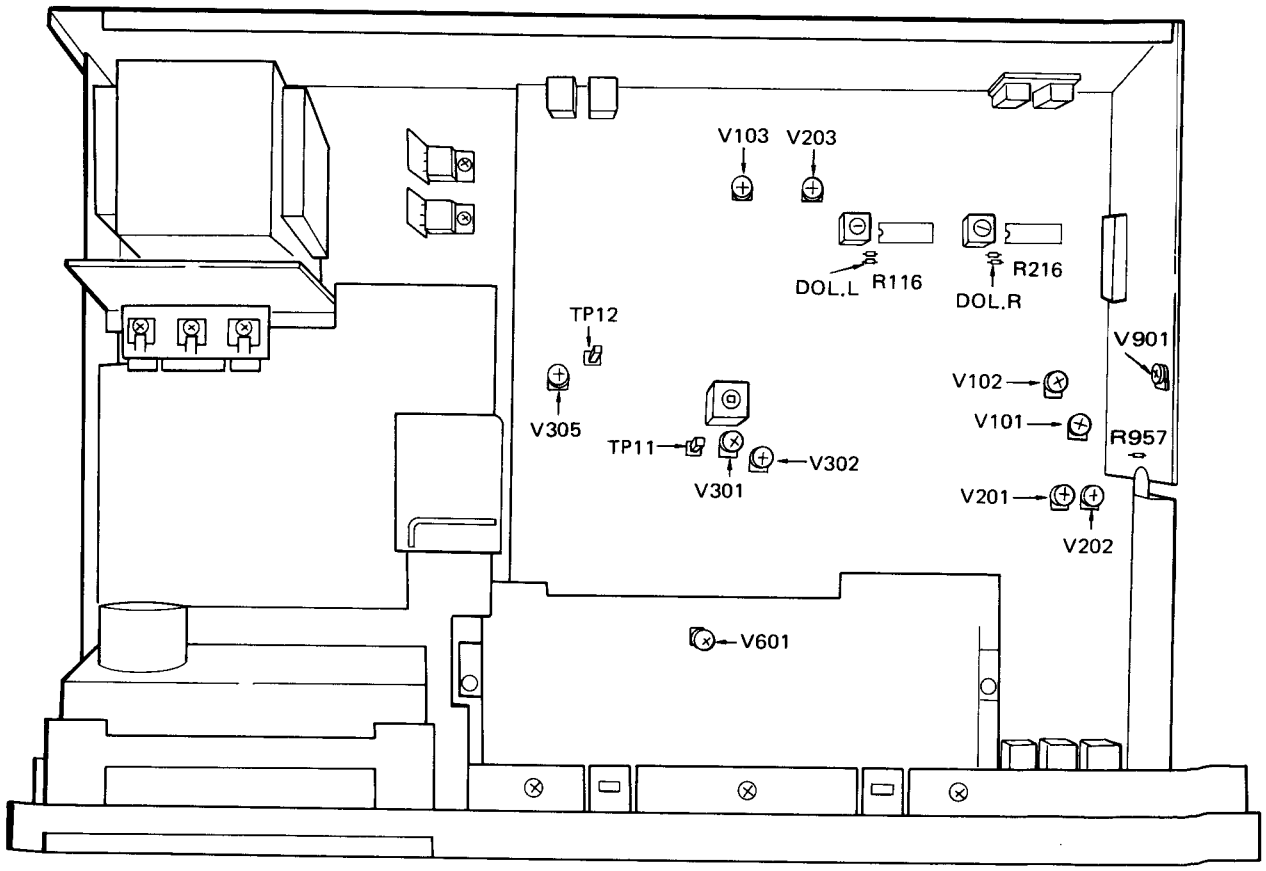


Fig. 9-4 Posiciones de ajuste

4. Ajuste de la operación de detección de punta de la cinta

	Modo	Señal de entrada y cinta de prueba	Posición de ajuste	Posición de medición	Valor de ajuste	Observaciones
1	Reproducción "PLAY"	Sin entrada — cargar una mitad de cassette vacío	V305	TP12 (PUNTA DE LA CINTA)	$1V^{+0,2}_{-0}V$	
2	• Confirme que la punta de la cinta es correctamente detectada (en las direcciones de avance "FWD" e inversión "REV" en el modo de inversión sin fin).					

5. Ajuste del indicador de nivel

	Modo	Señal de entrada y cinta de prueba	Posición de ajuste	Posición de medición	Valor de ajuste	Observaciones
1	Grabación/ pause "REC/PAUSE"	Aplique una señal de 315Hz/ −10dBv a los terminales de entrada de linea y coloque la cinta de prueba STD-608A	Controles del nivel de grabación "REC LEVEL"	TP (DOL.L) TP (DOL.R)	−14,9dBv (180mV)	
2			V601	Gire el V601 completamente a la izquierda y gírelo suavemente a la derecha y pare el giro cuando se cenciendan los segmentos "+3VU"		

6. Ajuste de la respuesta de frecuencia de grabación y reproducción

• Deje en OFF el interruptor DOLBY NR.

	Modo	Señal de entrada y cinta de prueba	Posición de ajuste	Posición de medición	Valor de ajuste	Observaciones
1	Grabación/ pausa "REC/PAUSE"	Aplique una señal de 315Hz/ −30dBv a los terminales de entrada de línea y coloque la cinta de prueba STD-608A	Controles del nivel de grabación "REC LEVEL"	TP (DOL.L) TP (DOL.R)	−37,9dBv (12,7mV)	
2	Avance Grabación — reproducción "FWD REC→ PLAY"	Grabe y reproduzca las señales de 315Hz y 6,3kHz a un nivel de entrada de −30dBv	V301 (Can. Izq.) V302 (Can. Der.)	Terminales de salida de línea derecho e izuierdo	Regule mediante repetición de grabación/reproducción para obtener un nivel de reproducción de +6,3kHz a +1,0dB con respecto a la señal de 315Hz	Las variaciones de +0,5dB a +1,5dB son permisibles.
3	Grabación — Reproducción "REC→ PLAY"	Con un nivel de entrada de +30dBv, grabe y reproduzca señales de 6,3Hz a 12kHz	Revisar		Las especificaciones para FWD y REV, y DOLBY NR OFF y ON (tipos B y C) (Véase la Fig. 9-5) deben estar en conformidad (para FWD y REV)	
4	Si las especificaciones no están en conformidad (incluyendo las siguientes inspecciones), reajuste el nivel de reproducción de 6,3kHz a la un valor dentrode −1,5dB y +2,5dB con respecto a la señal de 315Hz en el procedimiento 2.					
5	Repita la inspección del procedimiento 3 usando la cinta de prueba STD-603. Las especificaciones mostradas en la Fig. 9-6 deben estar en conformidad.					
6	Repita la inspección del procedimiento 3 usando la cinta de prueba STD-610. Las especificaciones mostradas en la Fig. 9-7 deben estar en conformidad.					
7	Después del ajuste, confirme que no hay deformación y revise "baja polarización"					

7. Ajuste del nivel de grabación

• Deje en OFF el interruptor DOLBY NR.

	Modo	Señal de entrada y cinta de prueba	Posición de ajuste	Posición de medición	Valor de ajuste	Observaciones
1	Grabación/ pausa "REC/PAUSE"	Aplique una señal de 315Hz/ −10dBv a los terminales de entrada de línea y coloque la cinta de prueba STD-608A	Controles del nivel de grabación "REC LEVEL"	TP (DOL.L) TP (DOL.R)	−17,9dBv (127,4mV)	
2	Grabación — reproducción "REC→ PLAY"	Grabe y reproduzca la señal de 315Hz/−10dBv	V103 (Can. Izq.) V203 (Can. Der.)		Regule mediante repetición de grabación/reproducción hasta obtener un nivel de reproducción de −17,9dBv (127,4mV)	
3	Grabación-reproducción "REC → "PLAY"	Grabe y reproduzca la señal de 315Hz/−10dBv en STD-603	Revisar		−17,9±1,5dBv	
4	Grabación — reproducción "REC → PLAY"	Grabe y reproduzca la señal de 315Hz/−10dBv en STD-610	Revisar		−17,9±1,5dBv	

8. Ajuste del tiempo de recuperación del sistema dbx

Modo	Señal de entrada y cinta de prueba	Posición de ajuste	Posición de medición	Valor de ajuste	Observaciones
STOP	Non	V901	Terminales R957	DC15mV	

Cinta de prueba : STD-608A (NORM)

Interruptor DOLBY NR : OFF	Interruptor DOLBY NR : ON (Tipo B)	Interruptor DOLBY NR : ON (Tipo C)

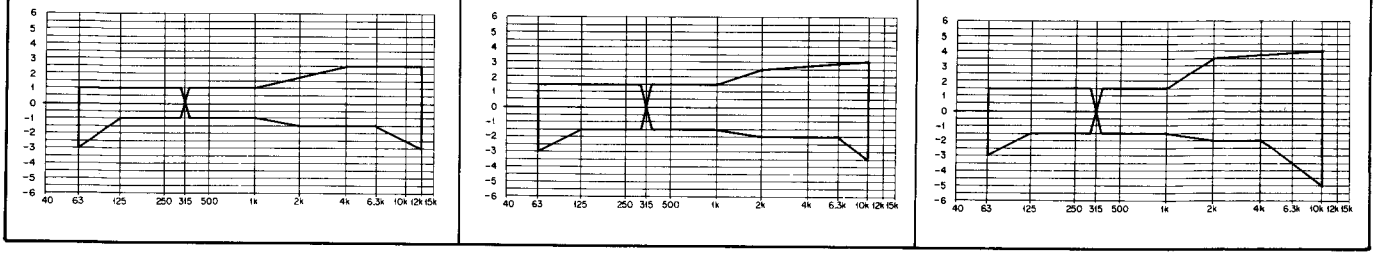


Fig. 9-5 Zonas permisibles de respuesta de frecuencia de grabación y reproducción (NORM)

Cinta de prueba : STD-603 (CrO_2)

Interruptor DOLBY NR : OFF	Interruptor DOLBY NR : ON (Tipo B)	Interruptor DOLBY NR : ON (Tipo C)

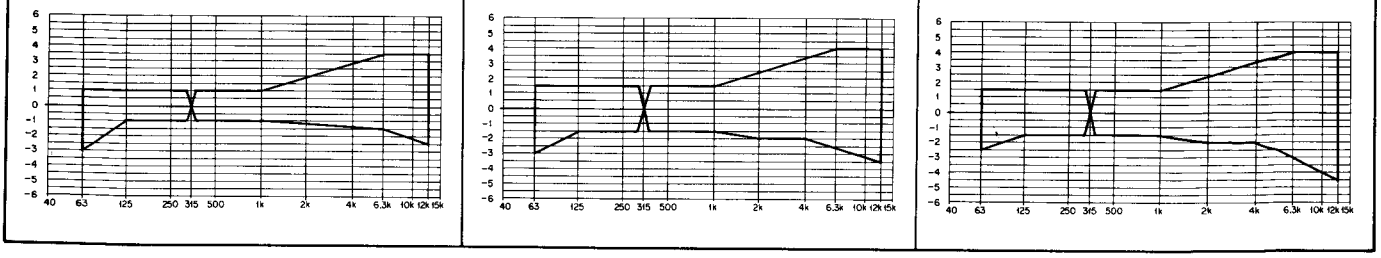


Fig. 9-6 Zonas permisibles de respuesta de frecuencia de grabación y reproducción (CrO_2)

Cinta de prueba : STD-610 (METAL)

Interruptor DOLBY NR : OFF	Interruptor DOLBY NR : ON (Tipo B)	Interruptor DOLBY NR : ON (Tipo C)

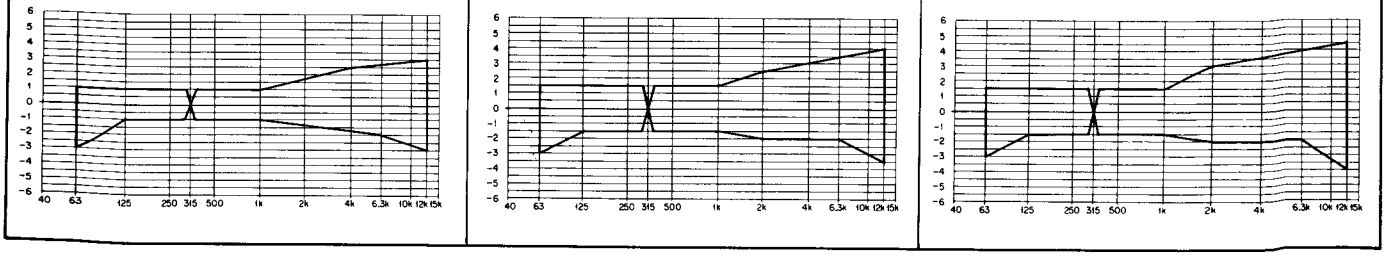
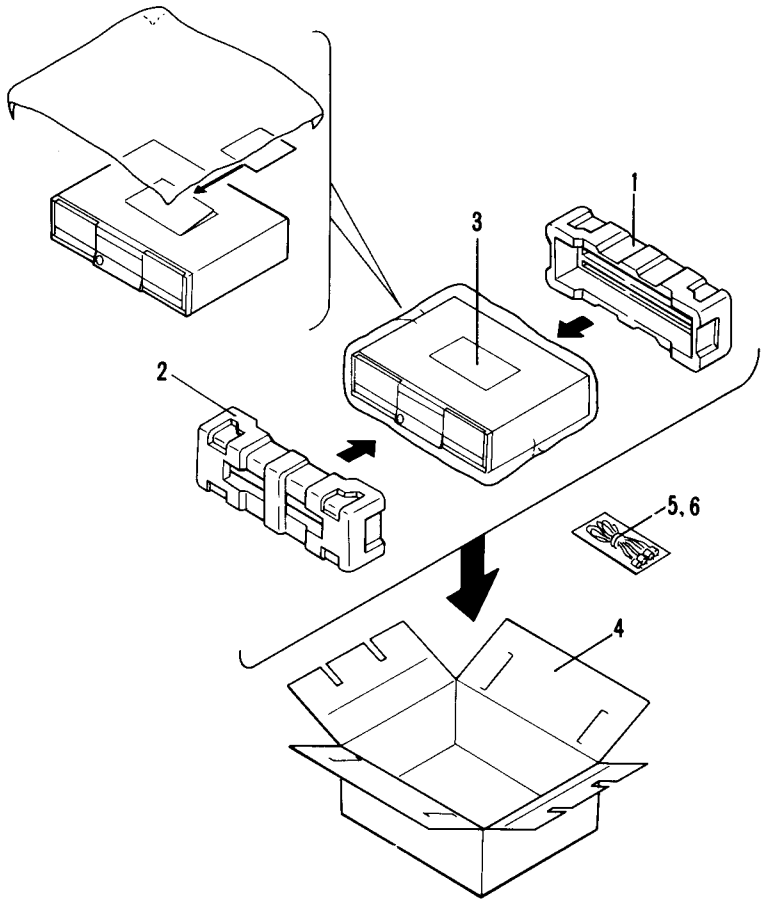


Fig. 9-7 Zonas permisibles de respuesta de frecuencia de grabación y reproducción (METAL)

10. PACKING

Mark	No.	Part No.	Description
	1	RHA-273	Pad R (without D/G type)
		RHA-272	Pad R (for D/G type)
	2	RHA-271	Pad F (without D/G type)
		RHA-270	Pad F (for D/G type)
	3	RRB-248	Operating instruction (English)
	4	RHG-785	Packing case ([BK], without D/G type)
		RHG-793	Packing case (silver model)
		RHG-786	Packing case (D/G type)
	5	RDE-010	Connection cord
	6	RDE-081	Control cord (D/G type only)



11. SUPPLEMENT FOR KC, HEM, HB, D AND D/G TYPES

NOTES:

- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

  Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω	*56 x 10¹*	*561*	*RD¼PS 5 6 1 J*
47kΩ	*47 x 10³*	*473*	*RD¼PS 4 7 3 J*
0.5Ω	*0R5*		*RN2H 0 R 5 K*
1Ω	*010*		*RS1P 0 1 0 K*

  Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ	*562 x 10¹*	*5621*	*RN¼SR 5 6 2 1 F*

- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *For your Parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.*

  ★★ GENERALLY MOVES FASTER THAN ★.

  This classification shall be adjusted by each distributor because it depends on model number , temperature, humidity, etc.

The KC, HEM, HB, D and D/G types are the same as the KU type with the exception of following sections:

Mark	Symbol & Description	Part No.					
		KU type	KC type	HEM type	HB type	D type	D/G type
⚠ ★	T1 Power transformer (120V)	RTT-416	RTT-416	.....	.....	.....	.....
	(220/240V)	.....	.....	RTT-418	RTT-418	.....	.....
	(120/220/240V)	.....	.....	.....	.....	RTT-419	RTT-419
⚠★★	FU1 Fuse (500mA)	REK-077	REK-077	.....	.....	REK-077	REK-077
	Fuse (T315mA)	.....	.....	REK-052	REK-095	.....	.....
⚠★★	FU2 Fuse (1.25A)	REK-073	REK-073	.....	.....	REK-073	REK-073
	Fuse (T1.25A)	.....	.....	REK-070	REK-101	.....	.....
⚠★★	S1 Line voltage selector	.....	.....	.....	.....	RSX-056	RSX-056
⚠	AC power cord	RDG-048	RDG-064	RDG-027	RDG-032	RDG-050	RDG-050
⚠	Strain relief (for AC power cord)	REC-395	.....	REC-396	REC-396	REC-395	REC-395
	Main unit	non supply	non supply	non supply	non supply	non supply	non supply
	Power supply unit	non supply	non supply	non supply	non supply	non supply	non supply
	Power switch unit	non supply	non supply	non supply	non supply	non supply	non supply
	Packing case (CT-S88R [BK])	RHG-785	RHG-785	RHG-785	RHG-785	RHG-785	RHG-786
	Packing case (CT-S88R)	.....	.....	RHG-793	.....	.....	.....
	Pad F	RHA-271	RHA-271	RHA-271	RHA-271	RHA-271	RHA-270
	Pad R	RHA-273	RHA-273	RHA-273	RHA-273	RHA-273	RHA-272
	Control cord	.....	.....	.....	.....	.....	RDE-081
	Operating instructions (English)	RRB-248	RRB-248	.....	RRB-248	RRB-248	RRB-248
	(English/German/French/Italian)	.....	.....	RRE-074	.....	.....	.....

Main Unit

- Main unit for the KC, HEM, HB and D types is the same as the KU type.
- Main unit for the D/G type is the same as the KU type with the exception of the following sections:

Mark	Symbol & Description	Part No.		Remarks
		KU type	D/G type	
★	D320 – D322 Diode	.....	1S2473	
	R329 Carbon film resistor	.....	RD1/4PM274J	
	R343 Carbon film resistor	.....	RD1/4PM102J	
	Terminal (REMOTE CONTROL)	.....	RKN-071	

Power Supply Unit

- Power supply unit for the KC, D and D/G types is the same as the KU type.
- Power supply unit for the HEM and HB types is the same as the KU type with the exception of the following sections:

Mark	Symbol & Description	Part No.		Remarks
		KU type	HEM & HB types	
	C421 – C423 Ceramic capacitor	.....	CKDYF103Z50	

Power Switch Unit

- Power switch units for KC, HEM, HB, D and D/G types are the same as the KU type with the exception of the following sections:

Mark	Symbol & Descriotion	Part No.			Remarks
		KU & KC type	HEM & HB type	D & D/G type	
⚠	C1401 Ceramic capacitor	RCG-006	RCG-009	RCG-008	
		(RCG-009)	.....	(RCG-013)	
		.....	.....	(VCG-032)	

Line Voltage Selection for HEM and HB Types

1. Disconnect the AC power cord.
2. Remove the bonnet case.
3. Change the connection of the power transformer primary lead wires as follows:
   - 220V: Connect the gray lead wire to the J1402-5 terminal on the power switch unit, and connect the red lead wire to the J1402-4 terminal.
   - 240V: Connect the gray lead wire to the J1402-4 terminal on the power switch unit, and connect the red lead wire to the J1402-5 terminal.
4. Stick the line voltage label on the rear panel.

Description	Part No.
220V label	AAX-193
240V label	AAX-192